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A Compilation
# of the
Coal Reports of Illinois
1882-1930

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ILLINOIS HISTORICAL SURVEY

A
COMPILATION
OF THE
Reports of the Mining Industry of Illinois
FROM
The Earliest Records to the Close of the Year 1930.

AUG. 26TH 1818

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INTRODUCTION.

All civilized governments gather and publish statistics relative to the various industries and conditions of their people for the purpose of making comparisons and drawing conclusions for the betterment of those conditions.

Statistics are the classified facts respecting the condition of the people, or any particular class or interest, which may be stated in numbers or tables of numbers—the science of the collection and classification of facts on the basis of relative numbers or occurrences as a ground for induction. Thus we have statistics of population, statistics of agriculture, church statistics, school statistics, &c.

Data is defined to be: something known, assumed or conceded, as the basis for an investigation or comparison.

In some fields of inquiry it is practically impossible to collect datum that is absolutely correct and the basis for the inquiry is either assumed or conceded. It will be readily seen that in this class of statistics the information derived will be only relatively true, but sufficiently so that valuable conclusions may be drawn from them.

It is, however, possible in some cases to obtain data that are facts, and where this is done, the tabulation of this data will disclose the truth as to matters covered by the inquiry or investigation.

In tabulating the data for our annual coal report we have an illustration of what is meant by the foregoing. This data is furnished by those having direct charge of the mines, and is reliable information. Some items of this information should be, and no doubt are, absolutely correct. Especially is this true of our shipping mines. The number of mines in operation, the number of accidents, number of machines and motors used, the number of animals underground, as well as the tons of coal mined, which is required by law to be weighed so as to ascertain the earnings of the miners, is, or should be, matters of record, and a transcript of this record to the schedule on which the report is made should be the truth, so far as these matters are concerned. So, also, the disposition of the product of the mines should be of record and a true transcript made.

There are, however, some items in the tabulation of our report, such as time worked and men employed, on account of being subject to the Law of Average, can only approximate the truth. But these items, if carefully computed and reported, furnish the basis for compilation and tabulation of valuable material.

In order to form statistics properly, the primary statistical quantities must be formed into tables and in the formation of these tables lies the art of the statistician. The first thing to be done in the construction of a table is to form a clear idea of what the table is to show and to express that idea in accurate language. This is a matter often neglected, or done in a slovenly way, and is a source of much waste of time and occasionally of misapprehension to those who have to study the figures thus presented. No table ought to be considered complete without a heading accurately describing its contents.

In a general way, we may say that the collection, compilation and tabulation of statistics is a science, but, as science is classified knowledge, the value of statistics increases in a direct ratio as the data of which they are composed approaches perfection, so that, to have statistics which reflect absolute truth, we must have data that is perfectly true.

It will be apparent, therefore, that the value of statistics depends primarily upon the value of the data entering into them. The value of the data depends upon whether they reflect the true facts in a given inquiry, or whether they are assumed or conceded as a starting point in the investigation of the subject matter under consideration, and hence only approximate the true condition.

In the latter case the statistics form a basis for induction and comparison and become a signboard pointing to the future and prophetic of what may be accomplished. The former not only forms a basis for comparison with facts obtained the same way, but is a history of what has been accomplished.

This book is a compilation and tabulation of the accumulated statistics of the coal industry of Illinois from the earliest records to and including the year 1930. It is also historical in that, in brief, it gives the account of the early discovery of coal, the beginning of mining, the development of, and improvements in, the mines.

In collecting the material the author has had access to the Annual Coal Reports issued by the State from 1882, to reports of the United States Government, bulletins of the State Geological Survey and of numerous books and pamphlets on the subject.

In short, this work is an attempt to bring all the main features shown in the Annual Reports down to the present time in statistical tables for the use of persons interested in the past history of the coal industry, and to serve as a starting point for future works of this kind.

How well he has succeeded will be left to the judgment of the interested public.

Springfield, Illinois, July 1, 1931.

WM. P. ASA,
Chief Clerk and Statistician.

CHAPTER I.

The discovery of coal, coal resources of the State, beginning of mining in Illinois, coal production and main track mileage of railroads 1833-1881, production by counties in periods 1882-1930, total production of the State, coal taken from the different seams, coal stripping, monthly production of shipping mines, number of shipping mines operated and time worked by months, production of coal in the United States, States in order of output, disposition of output of Illinois mines, disposition by counties, list of railroads handling coal.

HISTORY OF COAL MINING IN ILLINOIS.

THE DISCOVERY OF COAL.

The first discovery of coal on the North American Continent was made in what is now the State of Illinois. Authorities differ as to when and by whom this discovery was made.

The World's Cyclopedia and Dictionery of Universal Knowledge gives the honor of this discovery to Father Hennepin in 1669, on the Illinois River near the present site of Ottawa, La Salle County.

"Mineral Resources of the United States, Part 2, 1913," at page 832, says:

> "The first mention of coal in the territory which afterward became the United States is contained in the Journal of Father Louis Hennepin, published in 1698. The Journal contains a map on which is marked 'cole mine' on the banks of the Illinois River near the site of the present city of Ottawa, Hennepin having passed through this region 30 years before, in 1668."

Prof. A. Beman, in *Bulletin No. 56, State Geological Survey,* states that

> "Joliet and Father Marquette in their voyage of exploration in 1673 by way of the Illinois Valley and Chicago River made the original discovery, some place between the present cities of Utica and Ottawa."

Almost a century passed before it was known that coal existed in Pennsylvania and other places in this country.

During the first quarter of the nineteenth century it became known that a very wide extent of workable coal seams existed in Illinois and references are found to its abundance in several Counties of the State.

Tanner, in "A View of the Valley of the Mississippi," published in 1834, quoted by Mr. S. O. Andros in "Illinois Coal Mining Investigation, Bulletin 13," says:

> "Bituminous coal is found abundantly in all parts of this State, in the bluffs and the banks of the water courses. On the Illinois, and opposite to St. Louis in St. Clair County, it is very abundant."

Mr. Andros, in the same work referred to above, quotes Peck's "A Guide for Emigrants," published in 1831, as follows:

> "Stone coal abounds in Illinois. It may be seen frequently in the ravines and gullies and in the points of the bluff. * * * * * * There is scarcely a County in the State but what can furnish coal in reasonable quantities. Large beds are said to exist near the junction of the Fox River with the Illinois."

Coal was discovered in St. Clair County very early in this period, in a very singular way. Reynolds, in his "Sketches," says that "A citizen of the American Bottoms saw smoke arising from the same place for weeks together, which attracted his attention. Upon investigation, he found the coal in the bluff on fire and supposed it had caught from the roots of a tree which had been set on fire by burning prairie grass."

These explorations and discoveries prior to 1830 were confined to the outcroppings of seams found along the bluffs of rivers and streams. For, as Prof. Leighton so admirably says, in an article printed in the April, 1929, number of the Illinois Journal of Commerce:

> "It was only after drilling that coal was discovered away from stream outcrops, but this did not happen until the population had extended inland and the need for water wells arose."

In digging or drilling wells in search of water, very often coal seams would be penetrated at a depth ranging from a few feet to a hundred or more. And when the demand had increased beyond the capacity of "outcropped mines," to supply, the transition to "deep" mining was quickly made. This, however, was delayed until the coming of railroads and the development of manufactories. Quoting Prof. Leighton in his article above mentioned.

> "The coming of the railroad period brought a notable increase in the production of coal. * * * * * * Subsequently the development of mines went hand in hand with the construction of railroads."

The rapid growth of the railroads and the development of manufactories, were the greatest factors in the rapid development of the coal industry. Instead of local demands, which were supplied by wagon haulage, markets located in cities at great distance from the mines could be reached by railway transportation. Shaft mining was begun shortly after the completion of the Illinois Central railroad, 1855, at Duquoin, Perry County. At this time there was much activity in railroad construction and within ten years the coal fields of Alton, Kingston, Rock Island, Danville, Braidwood and Braceville were developed. Soon great industries sprang up along the lines of these railroads and coal mining soon became one of the leading industries of the State.

COAL RESOURCES.

Illinois occupies a commanding position with respect to available coal resources. More than two-thirds of the surface is underlaid with coal of varying thickness and is said to contain more coal than any other State east of the Mississippi River and surpassed by only two States in the Union, viz: Montana and North Dakota.

At the time of the publication of the first Annual Report, forty-seven Counties contained mines, and during the intervening years to the present time, mines have been opened in nine other Counties.

The maps of the State Geological Survey show that eighty-three Counties of the one hundred and two lie wholly or in part within the borders of the coal measures. In some of these Counties, no doubt, mining can never become profitable, because the beds are not of sufficient thickness.

The coal seams vary in thickness from a few inches to fourteen feet. Those seams of sufficient thickness for profitable mining are known as Nos. 1, 2, 5, 6 and 7. By far the greatest tonnage has been produced from seams 5 and 6.

The original coal resources of Illinois as estimated and shown in Bulletin 56, page 36, State Geological Survey, is 200,000,000,000 tons. This vast sum can be appreciated only when reduced to terms within the comprehension of finite minds.

Subtracting the amount of coal which has been mined, approximately on a 50 per cent basis of recovery, plus a like amount left in the ground, from the original estimate, we have left, in round numbers, 195,770,000,000 tons for the use of the present and future generations. Mining this on a 50 per cent basis of recovery and estimating the average annual production at 70,000,000 tons, the coal supply of the State will last until the year 3328, or about 1400 years. Or, assuming that the world's consumption of coal is one and one half billion tons annually, there is enough of this fuel hidden away beneath the surface of our State to supply the world's need for one hundred and thirty years.

BEGINNING OF COAL MINING IN ILLINOIS.

The beginning of coal mining in Illinois dates back to the first quarter of the nineteenth century. The first recorded instance we have is, that in 1810, coal was mined from the outcroppings along the bluffs bordering on the Big Muddy River in Jackson County a few miles below the present city of Murphysboro. A flat-boat was loaded with coal in that year and shipped to New Orleans.

The Journal of the Franklin Institute for 1836, quoted in Mineral Resources of the United States, 1913, page 832, says that the first actual mining operations conducted by white men were at the Mount Carbon, near Brownsville, in Jackson County, on the banks of the Big Muddy River, a short distance from its junction with the Mississippi. These mines were opened in 1810 and worked to a limited extent for many years.

In 1832, the next recorded date, several flat-boats loaded with coal were sent to the New Orleans market. No doubt coal was mined between these dates, but in a very limited way, as the demand was confined almost exclusively to the blacksmithing trade.

Coal mining began in St. Clair County about 1832 and was carried on in this County for domestic purposes, and also in Peoria, Rock Island, La Salle and other points.

In 1833, six thousand tons were hauled in wagons from the Belleville district to St. Louis. Evidently coal was mined in other parts of the State but we have no record of the amount.

This year, 1833, marks the beginning of Government records of the production of coal and from these records the following tabulation has been made, showing the tonnage mined each year from 1833-1839:

YEAR	TONS
1833	6,000
1834	7,500
1835	8,000
1836	10,000
1837	12,500
1838	14,000
1839	15,038

The United States Census Report for 1840 gives the total output at 16,967 tons and 152 employees, distributed over nineteen Counties. These Counties, arranged in order of output, are as follows:

COUNTY	TONS MINED	EMPLOYEES
St. Clair	5,196	24
Madison	3,890	25
Sangamon	3,280	10
Scott	2,028	18
Jackson	600	8
Peoria	480	21
Randolph	240	11
Schuyler	209	5
Marshall	160	3
Vermilion	114	3
Warren	112	2
Shelby	108	2
Adams	108	5
Henry	90	2
Edwards	80	1
Morgan	80	3
Lawrence	66	6
Gallatin	60	2
Perry	60	1

The first railroad in the Mississippi Valley was built in 1837 by a company organized by Governor Reynolds and connected the mines along the bluffs with a point opposite St. Louis, a distance of six miles.

At the close of 1849, fifty-two miles of railroad had been completed. Beginning with 1850, the construction of railroads began in earnest and by the close of that decade 2781 miles were completed.

The building of railroads and the development of the mining industry is shown, by years, from 1833 to 1881, in the following table, compiled by S. O. Andros and published in Illinois Coal Mining Investigations, Bulletin 13.

Table 1—Coal production and main track mileage of railroads

Year	Coal Tonnage	Main Track Mileage	Year	Coal Tonnage	Main Track Mileage
1833	6,000	0	1858	490,000	2,730
1834	7,500	0	1859	530,000	2,781
1835	8,000	0	1860	728,400	2,790
1836	10,000	0	1861	670,000	2,917
1837	12,500	6	1862	780,000	2,998
1838	14,000	6	1863	890,000	3,156
1839	15,038	6	1864	1,000,000	3,156
1840	16,967	6	1865	1,260,000	3,157
1841	35,000	22	1866	1,580,000	3,191
1842	58,000	22	1867	1,800,000	3,224
1843	75,000	22	1868	2,000,000	3,440
1844	120,000	22	1869	1,854,000	4,031
1845	150,000	22	1870	2,624,163	4,823
1846	165,000	22	1871	3,000,000	5,904
1847	180,000	22	1872	3,360,000	6,361
1848	200,000	22	1873	3,920,000	6,589
1849	260,000	52	1874	4,203,000	6,759
1850	300,000	111	1875	4,453,178	7,109
1851	320,000	271	1876	5,000,000	7,285
1852	340,000	412	1877	5,350,000	7,334
1853	375,000	759	1878	5,700,000	7,448
1854	385,000	788	1879	5,000,000	7,578
1855	400,000	887	1880	6,115,377	7,851
1856	410,000	2,235	1881	6,720,000	8,260
1857	450,000	2,502			

PRODUCTION SUBSEQUENT TO 1882.

Beginning with 1882, yearly reports by the operators have been made to the State government. At first these reports were made to the Bureau of Labor Statistics, but by Act of the Legislature, effective July 1, 1911, they were required to be made to the State Mining Board. The Civil Administrative Code, passed in 1917, placed all subjects relating to mining under the jurisdiction of the Department of Mines and Minerals. From these reports made by the operators, the Annual Coal Report is compiled and tabulated.

We find in the report of 1882 that forty-three Counties produced coal. There were 704 mines, of which 207 were "steam shafts," 140 "horse-power shafts," 9 were "steam slopes or shafts" and 329 "other slopes or drifts." The employees numbered 20,299, of whom 870 were under sixteen years old. The amount of capital invested in the industry was $8,230,180, and the annual capacity of the mines was placed at 18,079,637 tons, or about double the output of that year. From this time forward the industry advanced rapidly, not only in the amount of coal produced, but in improvements in the mines themselves, in working conditions for the employees and in methods of mining. These improvements are due in most part, if not entirely, to wise legislation and the careful supervision by conscientious men whose duty it was to supervise and enforce the laws.

The rapid growth in production from 1882 to, and including 1930, will be seen by reference to the following table taken from the annual reports and combined by periods. The table is arranged to show the counties in alphabetical order.

TABLE 2—COAL PRODUCTION FROM 1882 TO 1930, BY PERIODS—ARRANGED BY COUNTIES.

County	First period—1882-1892 Eleven years.	Second period—1893-1902 Ten years.	Third period—1903-1912 Ten years.	Fourth period—1913-1922 Ten years.	Fifth period—1923-1930 Eight years.	Total 1882-1930.
Bond	462,253	1,096,901	1,377,573	1,585,917	2,014,077	6,536,721
Bureau	4,084,228	11,940,880	16,413,758	11,706,542	2,122,848	46,268,256
Cass	50,726	87,848	11,352	25,183	25,026	200,135
Christian	2,574,473	7,205,943	11,509,987	24,980,760	31,398,218	77,669,381
Clinton	1,067,639	4,135,236	9,751,199	11,981,109	5,785,685	32,720,868
Edgar	73,161	800	21,655	------------	81,843	177,459
Franklin	1,100	120	13,966,993	96,904,643	113,630,250	224,503,106
Fulton	4,003,640	6,150,384	17,975,802	22,396,678	15,931,941	66,458,445
Gallatin	268,602	346,745	728,166	1,307,181	364,672	3,015,366
Greene	145,373	116,044	86,118	66,370	52,171	466,076
Grundy	8,408,635	11,957,019	11,323,512	3,245,415	2,804,684	37,739,265
Hancock	59,524	61,658	86,110	40,196	33,966	281,454
Henry	1,617,551	1,212,915	1,417,602	438,920	1,266,818	5,953,806
Jackson	4,849,226	8,313,530	7,427,784	8,985,666	12,154,341	41,730,547
Jefferson	3,304	270,352	176,827	83,434	693,363	1,227,280
Jersey	38,158	22,516	14,754	22,013	4,600	102,041
Johnson	112,724	24,966	22,923	51,879	24,355	236,847
Kankakee	738,106	974,181	238,691	------------	800	1,951,778
Knox	515,360	555,740	550,179	311,097	1,052,123	2,984,499
La Salle	12,315,119	15,528,757	16,312,971	10,678,032	4,519,121	59,354,000
Livingston	3,689,193	2,583,034	2,251,565	1,067,813	282,594	9,874,199
Logan	1,628,888	1,811,104	4,087,467	4,079,730	1,736,451	13,343,640
Macon	1,674,378	1,914,486	2,270,161	2,352,587	1,304,722	9,516,334
Macoupin	13,150,592	18,537,594	36,262,837	59,949,145	46,085,076	173,985,244
McDonough	1,166,556	592,358	386,847	200,695	137,288	2,483,744
McLean	1,505,175	1,776,331	1,461.917	649,534	141,632	5,534,589
Madison	6,877,408	11,709,210	32,986,318	40,165,189	25,518,882	117,257,007
Marion	1,912,071	6,529,188	10,538,558	9,514,335	4,613,332	33,107,484
Marshall	567,684	3,128,438	4,337,283	3,592,891	774,807	12,401,103
Menard	1,877,418	3,503,430	3,917,811	1,544,401	688,326	11,531,386
Mercer	1,928,057	4,623,135	4,414,042	2,975,194	701,425	14,641,853
Montgomery	458,400	2,760,693	12,254,811	30,119,333	16,125,629	61,718,866
Morgan	90,490	19,109	31,831	12,294	6,512	160,236
Moultrie	------------	------------	76,055	1,707,337	248,844	2,032,236
Peoria	5,283,051	6,278,238	9,610,148	12,589,947	10,397,797	44,159,181
Perry	3,870,552	7,153,820	14,123,638	23,540,434	20,023,480	68,711,924
Putnam	------------	------------	3,183,416	5,661,897	741,971	9,587,284
Randolph	1,254,827	2,822,444	7,079,868	12,355,186	7,837,808	31,350,133
Rock Island	1,318,200	473,027	720,894	547,649	256,705	3,316,475
St. Clair	13,156,808	19,427,686	40,352,379	51,249,956	28,856,831	153,043,660
Saline	1,113,472	931,663	18,959,571	44,423,046	35,934,055	101,361,807
Sangamon	9,158,957	20,256,558	48,104,902	63,310,212	42,705,225	183,535,854
Schuyler	172,396	129,230	135,575	172,443	200,964	810,608
Scott	155,963	222,573	137,850	35,660	27,646	579,692
Shelby	108,849	705,690	1,336,348	1,248,210	470,410	3,869,507
Stark	208,692	227,550	335,868	162,324	102,942	1,037,376
Tazewell	747,663	1,180,710	2.065,352	5,038,367	4,663,687	13,695,779
Vermilion	5,955,153	17,315,861	27,218,123	31,366,644	28,071,068	109,926,849
Warren	172,274	136,451	137,107	58,110	62,313	566,255
Washington	498,853	433,637	679,526	6,327,157	2,982,512	10,921,685
Will	4,486,605	490,026	1,390,295	826,661	1,870,033	8,625,620
Williamson	1,855,431	9,178,066	48,236,427	91,104,463	60,405,598	210,779.985
Woodford	1,446,111	1,540,013	1,478,428	1,520,745	737,519	6,722,816
Other Counties	216,069	108,792	189,041	938,797	470,852	1,923,551
Total	128,657,138	218,502,680	450,166,211	705,219,421	539,145.838	2,041,691,288

The following table is arranged to show the rank of the Counties according to the output in each of the periods.

TABLE 3—COUNTIES ARRANGED IN ORDER OF RANK OF OUTPUT IN EACH PERIOD

	First period—1882-1892.	Second period—1893-1902.	Third period—1903-1912.	Fourth period—1913-1922.	Fifth period—1923-1930.	Total 1882-1930
1	St. Clair	Sangamon	Williamson	Franklin	Franklin	Franklin
2	Macoupin	St. Clair	Sangamon	Williamson	Williamson	Williamson
3	La Salle	Macoupin	St. Clair	Sangamon	Macoupin	Sangamon
4	Sangamon	Vermilion	Macoupin	Macoupin	Sangamon	Macoupin
5	Grundy	La Salle	Madison	St. Clair	Saline	St. Clair
6	Madison	Grundy	Vermilion	Saline	Christian	Madison
7	Vermilion	Bureau	Saline	Madison	St. Clair	Vermilion
8	Peoria	Madison	Fulton	Vermilion	Vermilion	Saline
9	Jackson	Williamson	Bureau	Montgomery	Madison	Christian
10	Bureau	Jackson	La Salle	Christian	Perry	Perry
11	Will	Christian	Perry	Perry	Montgomery	Fulton
12	Fulton	Perry	Franklin	Fulton	Fulton	Montgomery
13	Perry	Marion	Montgomery	Peoria	Jackson	La Salle
14	Livingston	Peoria	Christian	Randolph	Peoria	Bureau
15	Christian	Fulton	Grundy	Clinton	Randolph	Peoria
16	Mercer	Mercer	Marion	Bureau	Clinton	Jackson
17	Marion	Clinton	Clinton	La Salle	Tazewell	Grundy
18	Menard	Menard	Peoria	Marion	Marion	Marion
19	Williamson	Marshall	Jackson	Jackson	La Salle	Clinton
20	Macon	Randolph	Randolph	Washington	Washington	Randolph
21	Logan	Montgomery	Mercer	Putnam	Grundy	Mercer
22	Henry	Livingston	Marshall	Tazewell	Bureau	Tazewell
23	McLean	Macon	Logan	Logan	Bond	Logan
24	Woodford	Logan	Menard	Marshall	Will	Marshall
25	Rock Island	McLean	Putnam	Grundy	Logan	Menard
26	Randolph	Woodford	Macon	Mercer	Macon	Washington
27	McDonough	Henry	Livingston	Macon	Henry	Livingston
28	Saline	Tazewell	Tazewell	Moultrie	Knox	Putnam
29	Clinton	Bond	Woodford	Bond	Marshall	Macon
30	Tazewell	Kankakee	McLean	Menard	Putnam	Will
31	Kankakee	Saline	Henry	Woodford	Woodford	Woodford
32	Marshall	Shelby	Will	Gallatin	Mercer	Bond
33	Knox	McDonough	Bond	Shelby	Jefferson	Henry
34	Washington	Knox	Shelby	Randolph	Menard	McLean
35	Bond	Will	Gallatin	Will	Shelby	Shelby
36	Montgomery	Rock Island	Rock Island	McLean	Gallatin	Rock Island
37	Gallatin	Washington	Washington	Rock Island	Livingston	Gallatin
38	Stark	Gallatin	Knox	Henry	Rock Island	Knox
39	Schuyler	Jefferson	McDonough	Knox	Moultrie	McDonough
40	Warren	Stark	Stark	McDonough	Schuyler	Moultrie
41	Scott	Scott	Kankakee	Schuyler	McLean	Kankakee
42	Greene	Warren	Jefferson	Stark	McDonough	Jefferson
43	Johnson	Schuyler	Scott	Jefferson	Stark	Stark
44	Shelby	Greene	Warren	Greene	Edgar	Schuyler
45	Morgan	Cass	Schuyler	Warren	Warren	Scott
46	Edgar	Hancock	Greene	Johnson	Greene	Warren
47	Hancock	Johnson	Hancock	Hancock	Scott	Greene
48	Cass	Jersey	Moultrie	Scott	Cass	Hancock
49	Jersey	Morgan	Morgan	Cass	Hancock	Johnson
50	Jefferson	Edgar	Johnson	Jersey	Johnson	Cass
51	Franklin	Franklin	Edgar	Morgan	Morgan	Edgar
52	----------------	----------------	Jersey	----------------	Jersey	Morgan
53	----------------	----------------	Cass	----------------	Kankakee	Jersey

TOTAL PRODUCTION OF THE STATE.

We have no record of the amount of coal mined from 1810 to 1832 except a few references which indicate but a few thousand tons for that period. From 1833 to and including 1881, as we have shown, a total of 73,341,123 tons were produced. For the period 1882 to the present time the output is 2,041,541,289 tons, making a total production of 2,114,882,412 tons.

The number of mines operated, men employed, average days worked, tons of coal produced, average tons per day and the average tons per man per day, from 1882 to 1930, is disclosed in the table following:

Table 4—Number of mines operated, men employed, average days worked, tons produced, average tons per day and the average tons per man per day—1882-1930.

Year	Mines operated.	Men employed.	Average days worked.	Tons produced.	Average tons per day.	Average tons per man per day.
1882	704	20,290	190	9,115,661	47,977	2.4
1883	637	23,939	195	10,508,785	53,891	2.3
1884	739	25,575	204	10,101,004	49,514	1.9
1885	778	25,946	200	9,791,874	48,959	1.9
1886	786	25,846	185	9,246,435	49,982	1.9
1887	801	26,804	190	10,278,890	54,099	2.0
1888	833	29,410	194	11,855,188	61,109	2.1
1889	851	30,076	189	11,597,963	61,365	2.0
1890	811	28,574	175	12,638,364	72,219	2 1
1891	898	32,951	192	15,660,698	81.566	2.5
1892	833	33,632	191	17,862,276	93,520	2,8
1893	779	35,390	201	19.949,564	99,252	2.8
1894	822	38,477	173	17,113,576	98,922	2.6
1895	844	38,630	178	17.735,864	99.645	2.6
1896	868	37,032	172	19,786,626	115,038	3.1
1897	853	33.788	169	20,072,758	118,773	3.5
1898	881	35,026	165	18,599,299	112.723	3.2
1899	889	36,901	181	23,434,445	129,472	3.5
1900	920	39,384	183	25,153,929	137,453	3.5
1901	915	44,143	174	26,635,319	153,364	3.5
1902	915	46,003	177	30,021.300	169.612	3.7
1903	930	49,814	192	34,955,400	182,059	3.7
1904	932	54,774	185	37,077,897	200,421	3.7
1905	990	59,230	167	37,183,374	222,655	3.8
1906	1,018	62,283	177	38,317,581	216,433	3.5
1907	933	66,714	180	47,798,621	265,548	4.0
1908	922	70,841	180	49,272,436	273,736	3.9
1909	886	72,733	177	49,163,710	277,761	3.8
1910	881	74,634	172	48,717.853	283,243	3.8
1911	845	77,410	165	50,165.099	304,031	3.9
1912	879	79,411	160	57,514,240	359,464	4.5
1913	840	79,497	170	61,846,204	363,801	4.6
1914	796	80.035	162	60,715,795	374,789	4.7
1915	779	75,607	158	57,601,694	364,517	4.8
1916	803	75,919	163	63,673,530	390,635	5.1
1917	810	80,893	179	78,983,517	441,250	5.4
1918	966	91,372	183	89,979,469	491,691	5.4
1919	937	90,897	160	75,099,784	469,374	5.2
1920	938	88,192	159	73,920,653	464,910	5,3
1921	1,035	95,763	152	80,121,948	527,118	5.5
1922	1,133	98,090	134	63,276,827	472,215	4.8
1923	1,136	103,566	146	75,514,095	517,220	5.0
1924	1.032	99,765	140	72,308,665	516,490	5.2
1925*	913	81,684	204	103,186,166	505,815	6.2
1926	921	77,732	131	69,813,255	532,925	6.9
1927	906	78,572	119	46,949,700	394,535	5.0
1928	857	65.508	132	56,211,082	425,841	6.5
1929	803	58.596	133	61,127,759	459,607	7.8
1930	939	56,011	120	54,035,116	450.293	8.0

Tonnage Taken From the Different Seams of Coal.

Beginning with 1903, coal taken from the various seams has been made a matter of record and is presented in tabular form by years. It will be seen that seams Nos. one, two, five, six and seven have produced more than 99 per cent of the total output. No. six seam has yielded by far the greatest tonnage.

The list following is prepared to show from 1903 the tons taken from the various seams and the per cent of the total contributed by each.

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* July 1, 1924, to December 31, 1925.

TABLE 5—SHIPPING MINES—TONNAGE TAKEN FROM THE DIFFERENT SEAMS 1903-1930 BY YEARS.

Year	Number One	Number Two	Number Five	Number Six	Number Seven	Other Seams	Total
1903----	814,098	5,802,943	11,369,134	11,379,930	4,300,240	10,192	33,676,537
1904----	731,905	5,701,045	11,848,075	12,750,210	4,743,297	4,985	35,779,517
1905----	664,470	5.729,476	11,159,660	13,353,739	5,049,198	-------------	35,956,543
1906----	563,451	5,311,018	12,269,985	13,366,632	5,609,485	2,240	37,122,811
1907----	530,428	5,624,184	11,113,835	22,467,845	6,700,547	-------------	46,436,839
1908----	470,922	5,535,798	10,503,742	29,805,508	1,404,550	89,210	47,809,730
1909----	428,439	5,696,998	10,934,538	29,138,978	1,667,197	92,412	47,958,562
1910----	338,511	4,678,373	10,691,436	29,611,564	1,854,328	50,989	47,225,201
1911----	283,999	4,179,742	11,513,432	30,673,265	2,045,747	62,472	48,758,657
1912----	406,375	4,327,875	12,957,599	36,673,889	866,466	864,491	56,096,695
1913----	412.734	4,506,026	13,006,968	40,975,466	1,051,347	562,875	60,515,416
1914----	444,112	4,186,043	11,735,171	40,609,685	1,833,884	570,287	59,379,182
1915----	353,434	3,355,529	11,231,763	39,810,296	341,149	1,080,385	56,172.556
1916----	499,930	3.941,707	12,231,580	42,545.811	2,668,148	396,060	62,283,236
1917---	307,462	4,144,670	15,033,726	55,510,559	1,948,616	467,021	77,412,054
1918----	430,542	4,072,479	18,086,543	60,054.310	5.218,538	443,816	88,306,228
1919----	326.819	3,166,176	13,649,453	52,590,161	3,729,333	289,779	73,751,721
1920----	300.405	2,838,892	14,096,645	50,840,044	3,997,885	335,739	72,409,610
1921----	302,122	2,229,087	13,884,483	57,166,695	4.454,252	302,443	78,339,082
1922----	239,421	1.492,282	12,877,710	42,717,586	3,835,759	243,335	61,406,093
1923----	118,111	767,824	17,649,542	50,559,819	3,297,154	1,018,387	73,410,837
1924----	311,690	1,573,997	15,955,506	51,358,867	1,124,303	-------------	70,324,363
1925----	375,166	2,010,226	20,530,477	75,815.245	1,281,185	-------------	100,012,299
1926----	251,904	1,046,014	13,700,165	52,237,218	595,132	6,008	67,836,441
1927----	425,769	389,352	9,580,520	34,522,675	---------	8,117	44,926,433
1928----	130,424	280,518	10,509,204	41,924,627	1,203,969	235,442	54,284,184
1929----	281,648	1,129,750	11,217,847	45,239,351	1,196,088	11,311	59,075,995
1930----	339,329	1,464,697	10,275,953	38,195.497	1,697,933	23,199	51,996,608
Total----	11,083,620	95,182,721	359,614,692	1,101,895,472	73,715,730	7,171,195	1,648,663,430
Percent of total contributed by each seam:	0.7	5.8	21.8	66.8	4.5	0.4	100.0

COAL STRIPPING.

Coal stripping was begun a half century ago in Vermilion County, where the coal seam was overlaid by a thin cover. The overburden was removed by scrapers drawn by horse power and operations were confined to those projects where but a few feet of surface overlaid the coal bed. The stripping method has been carried on more or less continuously in this field to the present time.

Machinery for removing the overburden has been invented and improved until now coal lying thirty, forty, or even sixty feet below the surface can be produced in competition with shaft mines.

This competition is made possible by the decreased overhead expenses and operating costs and the greater per cent of recoverable coal. In strip mines from ninety- five to ninety-eight per cent of the coal is taken out, while in shaft mines the basis is about fifty per cent.

In recent years strip mines have been opened in Edgar, Fulton, Henry, Jackson, Perry, Saline, St. Clair, Vermilion, Will and Williamson Counties. The depth of earth strata overlying the coal in these Counties is: Edgar, 15 to 25 feet; Fulton, 12 to 60 feet; Henry, 20 to 30 feet; Jackson, 40 to 50 feet; Perry, 30 to 48 feet; Saline, 35 to 45 feet; St. Clair, 30 to 35 feet; Vermilion, 30 to 42 feet: Will, 40 to 45 feet; Williamson, 15 to 50 feet.

Since 1920 a record has been made of the production of the strip mines, which is here shown by years; also the per cent of the total output produced by these mines.

TABLE 6—TONS PRODUCED BY STRIP MINES, 1920–1930.

Year.	Production in tons.	Per cent of total product.
1920	459,484	0.6
1921	528,035	1.1
1922	546,970	0.9
1923	985,736	1.3
1924	1,429,950	2.0
1925 (a)	4,551,481	4.4
1926	3,582,611	5.1
1927	2,757,410	5.9
1928	4,244,017	7.5
1929	5,250,500	8.6
1930	6,220,336	11.9

(a) From July 1, 1924, to December 31, 1925.

This tonnage is shown by Counties in the following table:

TABLE 7—PRODUCTION OF STRIP MINES BY COUNTIES—1920-1930—IN TONS.

Year	COUNTIES									
	Edgar	Fulton	Henry	Jackson	Perry	Saline	St. Clair	Vermilion	Will	Williamson
1920	---------	---------	---------	---------	---------	---------	---------	459,484	---------	---------
1921	---------	---------	---------	---------	---------	---------	---------	528,035	---------	---------
1922	---------	---------	---------	---------	---------	---------	---------	546.970	---------	---------
1923	---------	---------	---------	---------	124,824	---------	---------	855,411	---------	5,501
1924	---------	60,741	---------	171,845	112,100	181,442	---------	624,783	---------	279,039
1925	---------	858,592	---------	714,000	567,367	349,657	---------	1,294,846	---------	767,019
1926	---------	822,129	---------	748,729	558,139	200,279	155,937	499,152	---------	598,246
1927	16,881	740,083	---------	612,726	426,049	81,635	50,525	501,475	---------	328,036
1928	24,345	752,796	---------	838,797	1,035,843	85,890	403,357	535,170	226,368	341,451
1929	3,100	755,759	40,672	895,937	1,657,130	128,383	422,821	267,982	701,280	377,436
1930	---------	885,249	397,510	805,337	2,251,321	192,365	275,320	388,603	865,666	158,965
Total	44,326	4,875,349	438,182	4,787,371	6,732,773	1,219,651	1,307,960	6,501,911	1,793,314	2,855,693

Monthly production of the shipping mines has been recorded for the past twenty-five years. Prior to 1925 the Annual Coal Report was made for the fiscal year, but in order to show the monthly production each calendar year, the following table is given, arranged in order from 1906 to 1930.

TABLE 8—OUTPUT OF SHIPPING MINES EACH MONTH IN TONS.

Year.	Month.												
	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Total.
1906	4,288,706	4,336,350	5,378,459	392,382	659,019	2,556,004	2,884,310	3,244,518	3,478,829	4,282,628	4,343,762	4,613,382	40,458,349
1907	4,852,163	4,254,985	3,731,138	3,572,474	3,784,770	3,393,880	3,544,763	4,112,544	4,222,617	5,279,014	5,097,806	4,837,077	50,683,231
1908	4,408,282	4,566,526	6,055,194	140,640	2,081,853	3,463,414	2,978,427	3,809,419	4,298,981	5,019,764	4,523,011	4,748,402	46,093,913
1909	4,641,015	4,107,510	4,148,613	3,470,361	3,145,748	3,067,311	3,304,331	3,739,383	4,412,740	5,235,386	5,219,082	5,242,614	49,734,094
1910	5,722,496	5,551,940	7,026,402	23,966	109,662	1,637,199	1,769,521	2,413,674	3,580,137	5,451,241	5,876,969	5,768,701	44,931,908
1911	5,038,023	3,957,373	4,209,260	3,671,457	3,548,713	3,473,588	3,688,110	4,449,453	4,582,761	4,292,558	5,699,917	5,809,664	52,420,877
1912	6,004,637	6,435,284	7,836,392	42,593	2,889,866	3,365,460	3,913,798	4,856,510	4,943,939	6,318,120	6,124,572	6,369,690	59,100,861
1913	6,020,294	4,941,348	4,965,154	4,263,300	3,923,992	3,874,699	4,346,836	4,692,165	5,360,090	6,358,147	6,152,173	5,862,280	60,760,478
1914	6,279,536	5,890,184	7,307,128	1,367,631	2,517,608	3,245,404	3,885,020	4,616,379	5,263,681	5,303,326	5,007,272	6,077,525	56,760,694
1915	6,101,484	4,624,608	4,752,467	3,461,450	3,307,916	3,771,428	3,922,707	4,327,453	5,136,941	5,931,347	5,835,871	6,647,985	57,821,657
1916	7,059,672	7,295,853	6,034,778	2,728,120	3,607,507	3,755,002	3,934,914	4,941,314	5,683,600	6,682,117	6,668,805	6,950,611	65,342,293
1917	7,709,842	6,927,510	7,414,860	6,108,525	7,199,070	7,190,886	7,081,164	6,994,872	6,598,971	7,339,515	8,115,879	7,375,866	86,056,960
1918	7,151,438	7,420,893	7,804,880	6,889,472	7,764,220	7,769,058	8,241,553	8,150,310	7,631,595	8,228,109	6,517,099	5,742,115	89,310,742
1919	5,815,888	4,936,335	5,165,796	4,407,906	4,595,638	4,319,377	5,180,539	5,422,986	6,716,210	8,368,944	12,400	4,877,829	59,819,848
1920	8,094,498	7,064,670	8,195,258	5,625,112	6,015,903	6,835,261	5,558,039	7,182,965	7,483,039	8,500,552	8,663,728	9,043,092	88,262,117
1921	7,192,267	5,643,702	5,240,440	4,578,878	4,733,517	4,524,173	4,461,461	5,837,099	5,943,145	7,953,722	6,137,700	6,500,671	68,746,775
1922	7,258,507	7,564,485	9,661,920	27,261	26,388	33,734	13,509	1,613,944	6,894,295	8,047,935	7,617,608	8,157,410	56,916,996
1923	9,091,561	7,798,019	7,442,975	5,876,713	5,565,673	5,291,195	5,014,920	5,905,337	6,459,326	7,017,635	6,589,384	6,564,050	78,616,788
1924	9,146,625	7,173,915	5,445,671	3,689,314	3,714,795	3,603,391	3,897,426	4,540,048	6,239,427	6,845,167	5,841,149	7,334,048	67,470,976
1925	8,171,527	5,084,111	4,866,666	3,700,159	3,870,779	3,789,907	4,278,606	5,293,423	5,365,304	6,834,514	6,576,945	7,483,093	65,315,034
1926	7,028,104	5,280,662	5,741,023	4,706,814	3,774,146	4,026,870	4,281,442	4,819,411	5,277,073	6,501,154	7,936,541	8,463,201	67,836,441
1927	8,249,724	8,041,663	9,528,946	226,147	226,014	260,538	350,422	691,351	963,833	4,649,119	5,430,136	6,308,540	44,926,433
1928	5,873,311	5,753,712	7,395,453	1,220,182	2,556,400	2,947,504	3,158,981	3,816,097	4,327,025	5,931,799	5,420,339	5,883,381	54,284,184
1929	7,001,027	6,459,158	4,309,056	3,560,116	3,810,298	3,413,621	3,785,845	4,398,106	4,766,916	5,716,839	5,412,011	6,443,002	59,075,995
1930	6,560,159	4,784,623	4,133,842	3,674,352	3,354,981	3,033,048	3,274,699	3,716,651	3,997,358	5,251,276	4,787,969	5,427,650	51,996,608
Total	164,760,786	145,895,419	153,791,771	77,425,325	86,784,476	92,641,952	96,751,343	113,585,412	129,627,833	157,339,928	145,608,128	158,531,879	1,522,744,252
Percent of total.	10.82	9.58	10.10	5.08	5.70	6.09	6.36	7.46	8.51	10.33	5.56	10.41	100.00

Beginning with 1915, the number of shipping mines operated and the average number of days worked is shown by months for each calendar year to and including 1930, in the following table:

TABLE 9—NUMBER OF SHIPPING MINES OPERATED AND AVERAGE NUMBER OF DAYS WORKED EACH MONTH—1915-1930.

Year.	Jan.		Feb.		Mar.		Apr.		May		June		July		Aug.		Sept.		Oct.		Nov.		Dec.	
	Mines operated.	Average days worked.	Mines operated.	Average days worked.	Mines operated.	Average days worked.	Mines operated.	Average days worked.	Mines operated.	Average days worked.	Mines operated.	Average days worked.	Mines operated.	Average days worked.	Mines operated.	Average days worked.	Mines operated.	Average days worked.	Mines operated.	Average days worked.	Mines operated.	Average days worked.	Mines operated.	Average days worked.
1915	270	19	265	15	255	15	243	12	230	13	225	13	235	14	239	15	244	18	256	19	260	19	263	21
1916	277	21	280	21	281	18	225	11	231	13	235	14	243	14	261	17	276	18	288	20	302	20	309	21
1917	313	22	315	20	316	21	316	18	318	21	317	21	321	21	324	21	333	20	338	22	343	21	348	21
1918	347	21	353	20	352	20	352	19	354	20	352	21	359	23	358	22	359	21	362	23	365	19	360	16
1919	356	16	342	13	331	14	316	12	309	13	306	13	313	15	328	14	339	18	348	22	10	8	350	14
1920	364	20	365	18	363	19	358	15	358	16	365	18	365	14	370	18	372	18	373	20	375	20	376	21
1921	371	15	356	12	340	11	315	9	300	10	292	9	285	12	300	15	312	15	323	17	324	15	324	14
1922	321	16	311	17	310	20	5	13	8	16	8	15	10	14	317	6	357	16	362	17	364	16	367	17
1923	366	18	366	16	351	15	321	13	291	12	277	12	277	12	283	14	301	15	304	16	299	16	292	15
1924	302	21	298	16	278	13	225	11	196	12	178	13	166	13	182	16	191	16	200	19	205	18	208	20
1925	236	20	231	13	202	14	173	11	162	12	154	13	255	13	188	14	214	16	227	17	225	15	236	18
1926	206	19	205	15	189	17	171	16	157	13	155	13	154	17	169	15	181	16	194	19	223	20	231	21
1927	221	21	219	20	218	22	22	12	19	14	24	16	30	16	58	18	75	19	181	18	185	17	186	19
1928	181	18	178	16	176	20	90	12	106	14	116	14	127	15	131	17	171	15	184	18	186	17	187	18
1929	184	21	184	19	183	14	149	13	145	14	143	13	144	14	157	15	171	16	176	18	178	17	176	20
1930	178	20	172	15	159	13	144	13	130	12	123	12	130	13	144	13	152	14	155	18	163	15	166	17

Table 10—Production of coal in the United States from the earliest record to the end of 1929, by periods.

State.	Total production from earliest records to end of 1915.	Production 1916-1920 five years.	Production 1921-1925 five years.	Production 1926-1929 four years.	Grand total tons produced.
Alabama	285,476,000	89,170,000	90,486,000	76,331,923	541,463,923
Arkansas	40,049,000	9,897,000	6,307,000	6,364,108	62,617,108
Colorado	192,158,000	57,976,000	50,244,000	40,129,741	340,507,741
Georgia	9,725,000	463,000	312,000	239,636	10,739,636
Illinois	1,050,880,845	381,656,953	394,407,701	234,101,796	2,061,047,295
Indiana	285,279,000	127,575,000	108,386,000	75,845,358	597,085,358
Iowa	201,667,000	37,858,000	24,760,000	15,501,069	279,786,069
Kansas	143,383,000	32,779,000	19,637,000	13,645,971	209,444,971
Kentucky	249,874,000	150,542,000	218,715,000	254,370,600	873,501,600
Maryland	183,967,000	20,790,000	10,166,000	11,229,114	226,152,114
Michigan	25,351,000	6,506,000	4,882,000	2,865,869	39,604,869
Missouri	127,917,000	25,430,000	15,054,000	13,835,311	182,236,311
Montana	46,994,000	20,042,000	14,403,000	12,673,526	94,112,526
New Mexico	49,214,000	18,639,000	13,858,000	11,087,769	92,798,769
North Dakota	6,458,000	3,936,000	6,102,000	6,410,130	22,906,130
Ohio	723,955,000	203,045,000	157,951,000	83,003,477	1,167,954,477
Oklahoma	67,156,000	21,459,000	13,707,000	13,936,080	116,258,080
Pennsylvania bituminous	3,037,883,000	842,660,000	668,604,000	560,725,241	5,109,872,241
Tennessee	135,425,000	31,037,000	25,388,000	22,588,464	214,438,464
Texas	31,062,000	9,901,000	5,421,000	4,699,668	51,083,668
Utah	40,466,000	23,465,000	22,969,000	19,158,521	106,058,521
Virginia	112,369,000	50,791,000	53,238,000	51,698,306	268,096,306
Washington	69,952,000	17,878,000	13,129,000	10,263,327	111,222,327
West Virginia	936,380,000	431,846,000	485,219,000	560,101,855	2,413,546,855
Wyoming	129,769,000	42,776,000	34,058,000	28,542,790	235,145,790
Other States	45,848,000	469,000	626,000	186,098	47,129,098
Total bituminous	8,228,657,845	2,658,586,953	2,458,029,701	2,129,535,748	15,474,810,247
Pennsylvania anthracite	2,626,514,000	463,706,000	388,239,000	313,709,195	3,792,168,195
Total	10,855,171,845	3,122,292,953	2,846,268,701	2,443,244,943	19,266,978,442
Percent of bituminous coal contributed by:—					
Illinois	12.8	14.4	16.0	11.0	13.3
West Virginia	11.4	16.2	19.7	26.3	15.6
Pennsylvania	36.8	31.7	27.2	26.3	32.9
Ohio	8.1	7.6	6.0	3.9	7.6
Kentucky	2.2	5.7	8.9	11.9	5.6
All other States	28.7	34.4	22.2	20.6	25.0

PRODUCTION OF COAL IN THE UNITED STATES.

The importance of Illinois as a coal-producing State will be more vividly seen when compared with other States of the Union. To do this, a table has been compiled from the reports of the United States Bureau of Mines, in which the production is given by States, in periods, from the earliest recorded date to the end of the year 1929. During each of these periods, except the fourth, Illinois ranked third in the production of coal. Owing to local conditions in the two States, Kentucky, in 1927 and 1928, exceeded Illinois by a margin sufficient to give her third place in the fourth period, but in 1929 Illinois regained third rank, which, in all probability, will be held indefinitely. This table also reveals the fact that Illinois has contributed 13.3 per cent of all the bituminous coal mined in the United States.

In the table below the States are arranged in the order of their rank in each period.

TABLE 11—RANK OF STATES IN ORDER OF PRODUCTION.

Rank	Rank of States from earliest record to 1915.	Rank of States second period 1916-1920.	Rank of States third period 1921-1925.	Rank of States fourth period 1926-1929.	Rank of States by total production.
1	Pennsylvania	Pennsylvania	Pennsylvania	Pennsylvania	Pennsylvania
2	Illinois	West Virginia	West Virginia	West Virginia	West Virginia
3	West Virginia	Illinois	Illinois	Kentucky	Illinois
4	Ohio	Ohio	Kentucky	Illinois	Ohio
5	Alabama	Kentucky	Ohio	Ohio	Kentucky
6	Indiana	Indiana	Indiana	Alabama	Indiana
7	Kentucky	Alabama	Alabama	Indiana	Alabama
8	Iowa	Colorado	Virginia	Virginia	Colorado
9	Colorado	Virginia	Colorado	Colorado	Iowa
10	Maryland	Wyoming	Wyoming	Wyoming	Virginia
11	Kansas	Iowa	Tennessee	Tennessee	Wyoming
12	Tennessee	Kansas	Iowa	Utah	Maryland
13	Wyoming	Tennessee	Utah	Iowa	Tennessee
14	Missouri	Missouri	Kansas	Oklahoma	Kansas
15	Virginia	Utah	Missouri	Missouri	Missouri
16	Washington	Oklahoma	Montana	Kansas	Oklahoma
17	Oklahoma	Maryland	New Mexico	Montana	Washington
18	New Mexico	Montana	Oklahoma	Maryland	Utah
19	Montana	New Mexico	Washington	New Mexico	Montana
20	Utah	Washington	Maryland	Washington	New Mexico
21	Arkansas	Texas	Arkansas	North Dakota	Arkansas
22	Texas	Arkansas	North Dakota	Arkansas	Texas
23	Michigan	Michigan	Texas	Texas	Michigan
24	Georgia	Georgia	Michigan	Michigan	North Dakota
25	North Dakota	North Dakota	Georgia	Georgia	Georgia

DISPOSITION OF THE PRODUCT OF ILLINOIS MINES.

Prior to 1897, no disposition of the output of mines is shown, but, beginning with 1898, this item has been made a feature of the annual reports. As has been seen already, the development of mines and the building of railroads were, to a very large extent, interdependent. This fact is further demonstrated by the table showing the tonnage handled by railroads and the per cent of the total output so disposed of. The term "handled by railroads" includes the tons loaded on cars at the mines for shipment to market, the amount sold direct to railroad companies, and the number of tons supplied to locomotives at the mine chutes. "Disposed of otherwise" is the amount sold to local trade, used at the mine for generating steam, etc., and the waste in preparing for market.

TABLE 12—DISPOSITION OF OUTPUT OF ALL MINES—SHIPPING AND LOCAL.

Year.	Total output—tons—all mines.	Handled by railroads—tons.	Disposed of otherwise—tons.	Per cent of output handled by railroads.
1898	18,599,299	15,596,888	3,002,411	83.8
1899	23,434,445	20,019,147	3,415,298	85.4
1900	25,153,929	21,893,885	3,260,044	87.0
1901	26,685,319	23,547,911	3,137,408	88.3
1902	30,021,300	26,648,826	3,372,474	88.8
1903	34,955,400	31,201,620	3,753,780	89.3
1904	37,077,897	33,001,359	4,076,538	89.0
1905	37,183,374	32,845,310	4,338,064	88.4
1906	38,317,581	34,131,454	4,186,127	89.1
1907	47,798,621	43,133,241	4,665,380	90.2
1908	49,272,436	45,026,922	4,245,514	91.4
1909	49,163,710	44,918,206	4,245,504	91.4
1910	48,717,853	43,893,232	4,824,621	90.1
1911	50,165,099	45,456,193	4,708,906	90.6
1912	57,514,240	52,427,236	5,087,004	91.2
1913	61,846.204	56,876,944	4,969,260	92.0
1914	60,715,795	55,844,649	4,871,146	92.0
1915	57,601,694	53,167,494	4,434.200	92.3
1916	63,673,530	59,220,823	4,452,707	93.0
1917	78,983,517	73,550,125	5,433,392	93.1
1918	89,979,465	83,710,214	6,269,251	93.0
1919	75,099,784	68,988,042	6,111,742	91.9
1920	73,920,653	67,817,622	6,103,031	91.7
1921	80,121,948	73,572,012	6,549,936	91.8
1922	63,276,827	57,224,703	6,052,124	90.8
1923	75,514,095	68,970,913	6,543,182	91.3
1924	72,308,665	66,644,747	5,663,918	92.2
1925 (a)	103,186,166	95,610,713	7,575,453	92.7
1926	69,813,255	64,961,964	4,851,291	93.0
1927	46,949,700	42,472,805	4,476,895	90.5
1928	56,211,082	51,524,485	4,686,597	91.7
1929	61,127,759	55,761,398	5,366.361	91.2
1930	54,035,116	48,682,938	5,352,178	90.0
Total	1,818,425,758	1,658,344,021	160,081.737	91.2

Note—Local mines furnished 619,603 tons to locomotives.

(a) From July 1, 1924, to December 31, 1930.

The disposition of the tonnage of shipping mines has been made a matter of record by Counties from the year 1902 and the following table has been made to show the total tons mined, the tons shipped to market, the tons sold to railroad companies, the tons supplied to locomotives at mine chutes, the total tons handled by railroads and the per cent of the total output so handled.

TABLE 13—SHIPPING MINES—TONS PRODUCED BY COUNTIES, TONS DISPOSED OF TO RAILROADS AND THE PERCENTAGE OF THE TOTAL OUTPUT HANDLED BY RAILROADS—1902-1930.

County.	Total tons produced.	Tons shipped to market.	Tons sold to railroad companies.	Tons supplied to locomotives.	Total tons handled by railroads.	Per cent of total product handled by railroads.
Bond	5,078,307	3,887,447	789,160	463	4,677,070	92.1
Bureau	31,525,749	21,819,621	6,700,965	629,464	29,150,050	92.5
Christian	68,559,290	48,946,481	13,021,520	1,613,279	63,581,280	92.7
Clinton	28,238,918	22,108,369	2,912,464	1,265,340	26,286,173	93.1
Franklin	224,500,286	176,292,924	37,785,853	26,772	214,105.549	95 0
Fulton	53,186,259	38,855,174	12,046,827	475,923	51,377,924	96.6
Gallatin	2,054,462	1,764,131	8,601	61,245	1,833,977	89.3
Grundy	18,307,165	15,699,831	1,219,108	2,995	16,921,934	92.4
Henry	1,709,099	1,234,430	202,422	200	1,437,052	84.1
Jackson	28,434,146	23,458,645	2,047,504	865,783	26,371,932	92.6
La Salle	27,779,974	20,235,133	1,581,250	1,406,950	23,223,333	83.6
Livingston	2,643,384	1,973,641	899	272,333	2,246,873	85.0
Logan	10,067,924	6,678,967	455,116	641,233	7,775,316	77.2
Macon	5,899,553	1,849,795	3,333	22,666	1,875,794	31.8
Macoupin	144,047,098	67,742,276	68,389,462	1,156,344	137,288,082	95.3
Madison	98,816,809	81,120,224	12,068,418	360,123	93,548,765	94.7
Marion	25,539,830	18,537,742	3,185,889	1,662,541	23,386,172	91.6
Marshall	8,826,440	5,414,810	1,547,242	954,171	7,916,223	89.7
McLean	2,112,523	432,806	20,000	416,311	869,117	41.1
Menard	5,371,772	4,424,539	309,666	44,665	4,778,870	89.0
Mercer	7,901,164	6,084,049	1,390,509	22,704	7,497,262	94.9
Montgomery	58,863,634	40,352,606	15,758,515	92,515	56,203,636	95.5
Moultrie	2,032,236	1,439,868	371,470	--------------	1,811,338	89.1
Peoria	28,616,883	19,794,423	8,021,604	119,254	27,935,281	97.6
Perry	58,059,844	44,938,295	8,058,447	2,359,202	55,355,944	95.3
Putnam	9,584,411	5,669,478	3,332,134	60,265	9,061,877	94.5
Randolph	26,901,868	16,656,557	9,208,235	21,200	25,885,992	96.2
Saline	99,057,944	82,149,564	12,955,636	328,506	95,433,706	96.3
Sangamon	155,950,605	112,145,517	32,103,778	1,195,880	145,445,175	93.3
Shelby	2,866,897	2,121,985	26,558	94,602	2,243,145	78.2
St. Clair	119,177,899	96,566,819	12,688,571	2,344,576	111,599,966	93.6
Tazewell	10,218,324	4,413,892	4,417,211	91,219	8,922,322	87.3
Vermilion	83,229,073	63,346,709	16,733,212	332,493	80,412,414	96.6
Washington	9,840,912	3,692,908	4,620,082	625,909	8,938,899	90.8
White	1,461,776	1,004,684	147,963	67,342	1,219,989	83.5
Will	3,873,048	3,285,447	299,915	--------------	3,585,362	92.6
Williamson	200,639,733	147,014,274	43,831,888	173,337	191,019,499	95.2
Woodford	3,844,276	2,520,784	458,220	166,078	3,145,082	81.8
Other counties(a)	2,668,665	1,583,807	641,896	67,509	2,293,212	85.9
Total	1,677,488,180	1,217,258,652	339,361,543	20,041,392	1,576,661,587	94.0

(a) Edgar, Hancock, Jefferson, Kankakee, Knox, McDonough, Rock Island, Schuyler and Stark.

The railroads which have played such a prominent part in developing the mining industry of the State are listed below.

Beginning with 1902, the record of each road has been kept through the years. A few of these roads have changed their corporate names, but by tracing them carefully it is believed that the tonnage accredited to them is substantially correct.

In the list following, no road is listed by name that handled less than 1,000,000 tons during the years 1902-1930. The tonnage of all other roads is shown at the end of the table in a total. The greater part of these "Other Roads" lie wholly outside the State and bought coal from the operators of the mines. This coal, of course, was hauled by the road or roads serving the mine, but is accounted for as coal bought by railroads and not credited to the road over which it was shipped.

The names of the railroads are listed in the order of total tons handled.

TABLE 14—RAILROADS WHICH HAVE HANDLED THE COAL PRODUCED IN SHIPPING MINES ARRANGED BY RANK IN THE ORDER OF TONS HANDLED, AND THE PERCENT OF THE WHOLE THAT WENT TO EACH ROAD.

Rank	Railroads	Total tons handled by railroads.	Tons shipped to market.	Tons sold to railroad companies.	Tons furnished to locomotives at mines.	Per cent handled by each road.
1	Illinois Central	303,279.332	244,140,798	50,953,847	8,184,687	19.24
2	Chicago, Burlington & Quincy	242,898,857	192,782,122	49,632,512	484,223	15.41
3	Cle-Cin., Chicago & St. L.	142,118,873	114,198,107	27,029,567	891,199	9.01
4	Chicago & Eastern Illinois	117,737,479	105,098,124	12,478,315	161,040	7.47
5	Chicago & Alton	85,194,078	67,975,199	16,879,053	339,826	5.40
6	Wabash	84,660,900	58,664,006	24,828,101	1,168,793	5.37
7	Missouri-Pacific	81,778,695	57,487,734	24,076,934	214,027	5.19
8	Chicago & Northwestern	73,859,985	20,793,756	52,766,150	300,079	4.69
9	Baltimore & Ohio	39,768,015	31,849,587	6,239,387	1,679,041	2.52
10	Illinois Terminal	38,410,470	35,011,703	3,280,177	118,590	2.44
11	Litchfield & Madison	36,970,183	36,273,443	570,901	125,839	2.34
12	Chicago & Illinois Midland	28,721,340	26,461,980	2,080,078	179,282	1.82
13	Southern	26,125,434	21,798,039	4,223,582	103,819	1.65
14	Elgin, Joliet & Eastern	25,349,447	21,467,535	3,878,714	3,198	1.61
15	Pennsylvania Lines	25,104,740	21,582,938	3,454,357	67,445	1.59
16	Mobile & Ohio	22,519,473	14,104,065	8,045,416	369,992	1.43
17	Louisville & Nashville	21,243,545	17,529,530	1,856,968	1,857,047	1.35
18	St. Louis & O'Fallon	20,109,130	17,755,573	2,224,741	128,816	1.28
19	Chicago, Milwaukee & St. Paul	19,631,637	12,622,687	6,623,802	385,148	1.25
20	Chi.-Springfield & St. Louis	17,903,203	16,226,424	1,318,589	358,190	1.14
21	Minneapolis & St. Louis	16,581,669	12,487,634	3,898,130	195,905	1.05
22	Toledo, St. Louis & Western	12,607,334	8,670,068	3,926,748	10.518	.80
23	Atchison, Topeka & Santa Fe	12,397,243	6,875,823	4,470.590	1,050.830	.79
24	Chicago, Rock Island & Pacific	11,300,874	8,818,882	1,635,329	846,663	.70
25	Peoria & Pekin Union	10,649,070	6,010,261	4,551,138	87,671	.68
26	East St. Louis & Suburban	8,420,844	7,338,617	1,060,341	21,886	.53
27	Toledo, Peoria & Western	6,777,692	5,757,553	539,043	481,096	.43
28	St. Louis & Belleville	6,673,143	6,122,911	549,150	1,082	.42
29	Missouri & Illinois	6,315,134	4,582,836	1,615,451	116,847	.40
30	Peoria, Hanna City & Western	5,790,767	1,414,392	4,366,416	9,959	.37
31	Marion & Eastern	4,437,682	3,718,175	707,575	11,932	.28
32	New York Central	2,953,100	1,815,204	1,106,137	31,759	.19
33	Chicago & Great Western	2,948,461	162,927	2,785,534	---------------	.19
34	Rock Island & Southern	2,415,041	1,851,874	541,793	21,374	.15
35	Peoria & Eastern	1,170,752	495,333	648,573	26,846	.07
36	Other roads, including boats	11,837,965	7,312,812	4,518,404	6,749	.75
	Total	1,576,661,587	1,217,258,652	339,361,543	20,041.392	100.00

Chapter II.

Improvements, employees, machine mining, motor haulage, mechanical loading, explosives used for blasting coal, fatalities, change in corporate names, tracing of the shipping mines from dates opened, data concerning the shipping mines at the close of 1930.

Improvements.

The first reference we find in regard to improvements of the mines is in the 1883 Coal Report and pertains to ventilation and escapement shafts and states that a marked improvement had been made in both. During the year forty-two mines were provided with escapement shafts and many more were reported as being in process of construction. The report further says:

> "The disposition to comply with the law in this and all respects is general among the larger proprietors."

The foremost requirement of the mining law at this time was in respect to ventilation and means of escape in case of danger. To assure this, the law specified that all mines where more than ten men were employed should be provided with at least two places of ingress and egress, and that a given volume of fresh air must be constantly distributed throughout the workings.

State inspectors were charged with the duty of enforcing this law and only in a few instances were they compelled to resort to the courts.

By the close of 1886, 310 mines had been provided with escapement shafts and ventilating fans had been erected at 152. These mines represented the largest producers in the State. Other mines were provided with other and different systems of egress and ventilation, so that practically all the mines of the State were in conformity to the requirements of the law. The law also required suitable means of signaling between the bottom and the top, safety catches and guides on cages, brakes on drums, etc., which requirements were generally complied with.

Screens.

The first account we have of the use of screens is given in 1886 when it was reported that they were used at 218 mines and that 80% of the product was screened before going to market. It is stated that, "much the largest number of screens have a space between the bars of seven-eighths of an inch, with an average area of about sixty feet. This is regarded as a standard screen and is used by all of the larger companies."

Employees.

Prior to 1897 the only classification of the employees given was "underground" and "on surface," but, subsequently, they have been classed as "miners" "all others underground" and "number on surface." The tables following are made to show, from 1882 to 1897, the first classification and from 1897 to the present time (1930) the second classification:

Table 15—Classification of employees 1882-1896.

Year	Number inside.	Number outside.	Total.	Year	Number inside.	Number outside.	Total.
1882	17,415	2,875	20,290	1890	20,196	7,878	28,074
1883	21,839	2,100	23,939	1891	26,059	6,892	32,951
1884	20,610	1,965	22,575	1892	25,321	8,312	33,633
1885	20,772	5,174	25,946	1893	31,584	3,806	35,390
1886	20,973	4,873	25,846	1894	32,046	6,431	38,477
1887	21,158	5,646	26,804	1895	34,649	3,988	38,630
1888	23,648	5,762	29,410	1896	33,222	3,810	37,032
1889	23,583	6,493	30,076				

TABLE 16—CLASSIFICATION OF EMPLOYEES, 1897-1930.

Year.	Underground.			On surface.	Total employees.
	Miners.	Others.	Total.		
1897	25,498	4,750	30,248	3,500	33,788
1898	26,520	5,282	31,601	3,424	35,026
1899	26,449	6,750	33,199	3,702	36,901
1900	27,875	7,328	35,203	4,181	39,384
1901	30,829	8,921	39,750	4,393	44,143
1902	32,875	8,670	41,545	4,458	46,003
1903	34,904	9,802	44,706	5,108	49,814
1904	37,987	11,374	49,361	5,413	54,774
1905	41,202	12,234	53,436	5,794	59,230
1906	42,920	13,104	56,024	6,259	62,283
1907	45,498	14,621	60,119	6,595	66,714
1908	48,931	15,493	64,424	6,417	70,841
1909	50,834	15,540	66,374	6,359	72,733
1910	39,069	29,291	68,360	6,274	74,634
1911	39,912	31,061	70,973	6,437	77,410
1912	39,149	33,213	72,362	7,049	79,411
1913	35,401	37,092	72,493	7,004	79,497
1914	32,262	40,773	73,035	7,000	80,035
1915	29,560	39,812	69,372	6,235	75,607
1916	27,272	42,154	69,426	6,493	75,919
1917	27,114	46,023	73,137	7,756	80,893
1918	54,425	26,459	80,884	10,488	91,372
1919	53,792	26,725	80,517	10,380	90,897
1920	50,554	27,139	77,693	10,499	88,192
1921	55,660	29,242	84,902	10,861	95,763
1922	59,381	28,309	87,690	10,400	98,090
1923	62,811	29,998	92,809	10,757	103,566
1924	61,500	28,002	89,502	10,263	99,765
1925	52,057	21,472	73,529	8,155	81,684
1926	48,210	21,133	69,343	8,389	77,732
1927	50,266	20,553	70,819	7,753	78,572
1928	40,070	18,305	58,375	7,133	65,508
1929	32,862	18,813	51,675	6,921	58,596
1930	25,678	18,646	44,324	6,891	56,011

MINING MACHINES.

Coal cutting machines are mentioned in the Biennial Report of the Bureau of Labor, 1882, in these words:

> "Where the coal cutting machines are in use, the machine is placed in charge of a skilled operator, who employs one assistant, and is paid for cutting by the yard; while others 'shoot' and load the coal, and are paid by the ton."

Mining machines are mentioned in the report to the Bureau by the inspectors of six Counties, viz: La Salle, Mercer, St. Clair, Vermilion, Will and Williamson. We here quote the words of each inspector in regard to these machines:

La Salle County, Alexander Ronald, Inspector:

> "Coal cutting machines have been introduced into some of the larger mines to undermine the coal. * * * * The operators regard them as a financial success. The miners differ in opinion about the machines, the more intelligent holding that it is only a question of time when machinery will have to do a large part of the work now being done by hand, and that it will be better for the men that it should; while others foresee only the ruin of the miners, and the reduction of wages to starvation prices."

Mercer County, William McLaughlin, Inspector:

> "At present, coal cutting machines are being used which are reported as giving entire satisfaction both to the company and the men."

St. Clair County, James Word, Inspector:

> "The use of machines in the mines is considered dangerous on account of the noise they make, which prevents the men from hearing any movement on the roof, and anticipating a fall; also that men object to them for the reason that when business is light, operators keep the machines running and allow the men to remain idle."

Vermilion County, Isaac Bracewell, Inspector:

> "Mining machines have been tried in this field and abandoned."

Will County, Richard Moffatt, Inspector:

> "They (cutting machines) are employed here in narrow work, and both the companies and the men are satisfied with results. They were previously employed in this district for doing room work, but the company, which used them in rooms, had them withdrawn some time ago."

Williamson County, James Thompson, Inspector:

"No use has been made here of mining machines."

No mention is made of the number of machines used nor the tonnage undercut, neither is the subject of mining machines referred to again until the report of 1886, where it is stated that 235 were used.

Beginning with 1888, the Annual Coal Reports show the number of mines using undercutting machines, the number used and the tonnage undercut, which is summarized and presented in the following table, by years, and also shows the percentage of the mines using, and product undercut by machines.

TABLE 17—NUMBER OF MINES USING MACHINES, NUMBER USED, TONS UNDERCUT, PERCENTAGES, 1888-1930.

Year.	Number of mines using machines	Number used.	Tons undercut.	Per cent of		Year.	Number of mines using machines	Number used.	Tons undercut.	Per cent of	
				mines using.	tons cut.					mines using.	tons cut.
1888	38	272	2,243,216	12.5	18.9	1910	114	1,280	18,176,254	29.2	37.3
1889	35	235	2,246,713	10.5	20.2	1911	126	1,430	19,998,259	32.6	39.9
1890	34	266	2,881,983	10.4	22.8	1912	129	1,581	25,550,059	36.6	44.4
1891	34	241	2,423,080	10.4	18.7	1913	140	1,639	30,228,520	37.8	48.9
1892	41	300	3,866,289	13.3	22.7	1914	141	1,828	31,446,823	41.5	51.8
1893	41	310	4,595,130	13.2	23.0	1915	131	1,686	34,057,426	46.8	59.1
1894	40	296	3,412,293	12.5	24.6	1916	139	1,817	39,312,376	48.9	61.7
1895	40	322	3,531,436	12.5	25.1	1917	151	1,920	47,232,880	46.6	59.8
1896	42	307	3,871,410	12.7	19.4	1918	174	2,054	50,027,491	47.0	55.6
1897	43	320	3,946,257	13.9	19.6	1919	199	2,124	42,993,172	53.2	57.2
1898	55	392	3,415,635	16.7	18.4	1920	211	2,336	45,228,595	56.4	61.2
1899	64	440	6,085,312	19.8	26.0	1921	238	2,756	50,340,866	60.9	62.8
1900	67	436	5,583,594	20.7	22.2	1922	208	2,768	41,253,767	58.6	65.2
1901	63	464	5,774,639	19.0	21.7	1923	245	3,062	51,141,281	66.0	67.7
1902	64	464	6,497,123	19.3	21.6	1924	217	3,034	50,244,375	64.2	69.5
1903	68	522	7,646,777	19.3	21.9	1925	185	4,762	81,488,011	71.2	79.0
1904	67	623	7,140,427	17.6	19.3	1926	177	2,308	51,423,917	71.4	73.7
1905a	76	784	8,202,066	19.1	22.6	1927	190	2,455	34,516,666	77.1	73.5
1906	85	962	9,563,230	20.3	24.9	1928	169	2,109	42,179,372	80.1	75.0
1907	101	1,105	14,490,454	24.6	30.3	1929	159	2,026	46,642,157	78.3	76.3
1908	105	1,160	15,210,423	25.8	30.8	1930	166	1,667	40,799,961	89.7	75.5
1909	107	1,246	16,407,692	27.9	33.4	------	--------	--------	------------	------	------

a From July 1, 1924, to December 31, 1925.

MOTOR HAULAGE.

Forty-three years ago, 1887, the first electric mine locomotive was completed and put in service hauling coal underground. This was the "Pioneer"; but two years later it was superseded by another, which, in turn, was displaced, in 1891, by a third, called the "Terrapin Back." The immediate predecessor of the modern locomotive came into existence about 1895, but it was several years later that its use became general in this State.

The 1891 Coal Report contains the first reference we find concerning underground motor haulage. Here it is stated that "in Livingston County the C. W. & V. Coal Co., at its No. 3 mine, have been experimenting with an electric motor, but up to the end of the year it was only partially successful." In 1900 seven mines used motor haulage, which was an increase of three over the previous year. Other methods of haulage that year were: cable, 27 mines; horse or mule, 512 mines; hand, 374 mines. The next year 12 mines employed motor haulage. In 1902 the number of mines using motors had dropped to 10; but the next year increased to 14, and remained at that number in 1904, but increased in 1905 to 19. The next year, the number increased to 34, or 79 per cent. No mention of the number of motors used is made until the year 1907, but probably not more than one or two in any one mine. Beginning with 1907, a record has been made which shows the number of mines using motor haulage, the number of motors in use and the tonnage hauled. These items, with percentages, are shown in the table given below:

TABLE 18—NUMBER OF MINES USING MOTORS, THE NUMBER USED, AND TONS HAULED, WITH PERCENTAGES, 1907-1930.

Year.	MOTOR HAULAGE										
	Number mines using.	Number used.	Tons hauled.	Percentage of		Year.	Number mines using.	Number used.	Tons hauled.	Percentage of	
				mines using.	product hauled.					mines using.	product hauled
1907	75	129	16,542,575	18.3	35.6	1919	259	1,114	66,686,930	69.4	90.4
1908	88	185	19,024,665	21.6	39.8	1920	276	1,228	66,441,191	74.0	91.8
1909	96	210	21,892,462	25.0	45.6	1921	280	1,406	71,329,567	72.0	91.1
1910	106	229	23,204,480	27.2	49.1	1922	242	1,364	55,028,080	68.8	89.6
1911	137	316	29,310,173	35.4	60.1	1923	285	1,547	70,863,815	76.2	96.5
1912	165	381	37,958,050	43.4	67.7	1924	259	1,565	65,900,698	76.6	93.7
1913	185	466	46,194,737	49.9	76.3	1925	195	1,360	59,511,555	76.5	92.7
1914	191	540	47,485,729	56.2	80.0	1926	182	1,288	61,486,775	74.6	90.6
1915	173	604	47,239,554	61.8	84.1	1927	180	1,250	40,144,446	84.5	92.4
1916	176	648	53,140,005	62.0	85.3	1928	158	1.192	49,007,549	87.8	94.7
1917	200	744	67,196,786	61.7	86.8	1929	146	1,281	52,426,315	90.2	94.0
1918	240	960	77,662,619	64.8	88.0	1930	133	1,201	41,181,378	90.0	90.0

MECHANICAL LOADING.

Twenty-five or more years have been spent in experimentations with, and development of, mechanical loading devices. Before 1923, very little progress was made in mechanical loading and in that year, according to the Federal Bureau of Mines, only about 2,000,000 tons were loaded by this method in the United States. The rapid growth of loading coal mechanically is indicated by the figures for 1924, when 3,500,000 tons were loaded, and 1925, when it had increased to 5,400,000 tons, or 70 per cent in two years.

Illinois, no doubt, contributed to the totals for these years, but it is impossible to say how much, as no reports for this State are available until the year 1927. During this year 129 loading machines of all kinds were used in 21 mines, loading 1,657,858 tons and operating an average for each machine of 85 days. The next year there were 992 machines used in 54 mines, an average of 125 days, loading 6,742,154 tons. It will be seen that more coal was loaded mechanically in Illinois in 1928 than in the whole country in 1925.

The rapid growth in mechanical loading in this State is disclosed in the tabular statement showing the number of mines using loading machines, the number of machines used and the tonnage loaded, by years, 1927-1930 inclusive; also the per cent of mines using machines and tons loaded.

TABLE 19—NUMBER OF MINES USING LOADIND MACHINES, NUMBER OF MACHINES USED, TONS LOADED AND PER CENT OF MINES USING AND TONS LOADED, BY YEARS, 1927-1930.

Year.	Mechanical Loaders.			Shipping Mines Operated (exclusive of strippings)		Per cent of	
	Number of mines using.	Number of machines used.	Tons loaded.	Number.	Tons mined.	Mines using machines.	Tons mined.
1927	21	129	1,657,858	226	42,169,025	9.3	3.9
1928	54	992	6,742,154	191	50,040,167	28.3	13.5
1929	73	2,128	17,830,368	183	53,825,404	40.0	33.1
1930	69	2,238	23,249,881	170	45,776,272	40.6	50.8

In the next table is revealed by years the number of mines loading the entire output mechanically and the number in which only a part of the total was so loaded, together with the number of machines and the tons handled in each class.

TABLE 20—MECHANICAL LOADING, FOUR YEARS, ENTIRE OUTPUT AND PART OF OUTPUT, NUMBER OF MINES, MACHINES AND TONS LOADED IN EACH CLASS AND TOTAL TONNAGE LOADED MECHANICALLY.

Year	LOADED MECHANICALLY.						Total tons loaded mechanically.
	Entire Output.			Part of Output.			
	mines.	machines.	tons.	mines.	machines.	tons.	
1927	6	64	1,172,112	15	65	465,746	1,637,858
1928	17	177	2,299,720	37	815	4,442,414	6,742,134
1929	22	603	5,882,615	51	1,525	11,947,753	17,830,368
1930	31	1,247	13,483,910	38	991	9,765,971	23,249,881

The record of the four years in which loading machines were used is further illustrated by dividing them into two classes—machine loaders and conveyors—and showing the number of mines using, the number used, tonnage loaded, number of men behind the machines and the average days they were operated each year.

TABLE 21—MECHANICAL LOADING—LOADERS AND CONVEYORS—NUMBER OF MINES USING, NUMBER OF MACHINES USED, TONS LOADED, MEN BEHIND MACHINES AND AVERAGE DAYS WORKED—1927-1930.

Year.	Loaders.					Conveyors.				
	Mines using.	Machines used.	Tons loaded.	Men behind machines.	Average days worked.	Mines using.	Machines used.	Tons handled.	Men behind machines.	Average days worked.
1927	11	79	1,341,697	720	116	10	50	316,161	247	71
1928	31	125	3,224,157	1,430	144	52	867	3,517,997	2,249	112
1929	30	219	6,395,533	2,556	155	61	1,909	11,434,835	4,817	141
1930	34	256	10,224,399	3,331	149	58	1,982	13,025,482	4,351	176

REPORT OF LOADING MACHINES AND CONVEYORS IN BITUMINOUS COAL MINES IN THE UNITED STATES IN 1930.

The following report issued by the Federal Bureau of Mines for 1930 shows that Illinois is far in the lead of all other States in mechanical loading of coal—in fact, nearly one-half the nation's total is loaded by this method in Illinois.

DEPARTMENT OF COMMERCE, UNITED STATES BUREAU OF MINES,
SCOTT TURNER, Director.
STATISTICAL AND ECONOMIC SURVEYS, COAL DIVISION.

LOADING MACHINES AND CONVEYORS IN BITUMINOUS COAL MINES IN 1930.

From 37,862,000 tons in 1929 the production of bituminous coal by "mechanized mining" has increased to 46,824,000 tons in 1930. This is a gain in one year of 8,962,000 tons, or 23.7 per cent. The increase is the more remarkable because it occurred in a time of acute business depression when the national demand for bituminous coal declined 13 per cent and when production by hand loading fell off 17 per cent. A better indicator of the growth of mechanization is the proportion mined mechanically which increased from 7.1 per cent in 1929 to 10.5 per cent in 1930. Measured by this standard, the degree of mechanization in 1930 was nearly half again as great as in the preceding year.

These figures refer only to mechanical devices designed to reduce the labor of hand shoveling into mine cars, although in a larger sense the introduction of any machine, such as the cutting machine or the haulage locomotive, is a form of mechanization.

Source of information.—The figures are a preliminary summary of a study by F. G. Tryon and L. Mann which will later be published in detail. No pains have been spared to insure completeness, but the Bureau will appreciate advice as to omissions if any are noted. The statistics are based on replies to a question on the report card sent to all operators, inquiring whether loading machines were used in 1930. Every operator courteously reported the number and types of machines and the tonnage handled by each type. To make sure that every mine using mechanical loading was included, manufacturers of equipment were asked for lists of the mining companies to whom they had sold machines. The Bureau especially appreciates the courtesy of the Pennsylvania Department of Mines, the *Illinois Department of Mines and Minerals*, the State Coal Mine Inspector of Wyoming, and Mr. Jonas Waffle of Indiana, in furnishing information on operations in their States.

Summary for 1930.—The tonnage of bituminous coal produced by mechanized mining in 1930 is summarized in Table I. The total of 46,824,000 tons relates only to operations underground. It does not include coal loaded by power shovels in strip pits, which amounted to approximately 20,000,000 tons in 1930. Neither does it include anthracite, 4,253,000 net tons of which were mined mechanically in 1930, according to the Pennsylvania Department of Mines.

It is also important to note that the figures in Table I represent production and not capacity. Because of the depression many mines were working short time, and, besides, a considerable number of the machines used in 1930 were installed late in the year and so had little effect on the production for 1930.

Of the total tonnage handled mechanically, 42.9 per cent was loaded by mobile loading machines, 3.5 per cent by scraper loaders, 40.7 per cent by pit-car loaders, and 12.9 per cent by conveyors, including duckbills.

TABLE I—TONNAGE OF BITUMINOUS COAL PRODUCED BY MECHANIZED MINING IN 1930.

	Net tons.	Per cent.
LOADED BY MACHINE:		
Mobile loading machines	20,078,000	86.5
Scraper loaders	1,648,000	7.1
Duckbills and other self-loading conveyors	1,487,000	6.4
Total loaded by machine	23,213,000	100.0
HANDLED BY CONVEYORS:		
Duckbills and other self-loading conveyors	1,487,000	5.9
Pit-car loaders	19,066,000	76.0
Other hand-loaded conveyors	4,545,000	18.1
Total handled by conveyors	25,098,000	100.0
RECAPITULATION, LESS DUPLICATIONS:		
Mobile loading machines	20,078,000	42.9
Scrapers	1,648,000	3.5
Pit-car loaders	19,066,000	40.7
Conveyors, including duckbills	6,032,000	12.9
Grand total, mechanized mining	46,824,000	100.0

Tonnage loaded by machine and tonnage shoveled on conveyors.—The total quantity of bituminous coal loaded by machine in 1930 (see Table I) was 23,213,000 tons. This includes all types of machines that eliminate hand shoveling except for incidental clean-up. In addition, 19,066,000 tons were shoveled by hand on pit-car loaders (locally often called "conveyors") and 4,545,000 tons on hand-loaded face conveyors. These devices, though not loading machines proper, greatly reduce the labor of hand shoveling by reducing the height to which the miner must lift the coal. When they are included, the total produced by mechanized mining in 1930 is 46,824,000 tons.

Increase by types of machines, 1929-1930.—In comparison with 1929, the total mechanized tonnage increased 23.7 per cent. Table II shows that all types of machines have contributed to this increase. The tonnage handled by mobile loading machines increased 22.2 per cent. Scrapers, which had barely held their own in the three years previous, increased slightly, while duckbills, including other types of self-loading conveyors, showed a gain of 13.6 per cent.

Somewhat larger increases were recorded by the devices involving hand shoveling. The phenomenal increase in pit-car loaders during the period when this device was invading the Illinois field could hardly be maintained, but for the country as a whole pit-car loaders showed a growth of 27.3 per cent in 1930. The tonnage handled by means of hand-loaded face conveyors increased 26.5 per cent.

TABLE II—COMPARATIVE INCREASE IN TONNAGE HANDLED BY THE PRINCIPAL TYPES OF MACHINES, 1929 TO 1930.

	1929	1930	Increase.	
	Net tons.	Net tons.	Net tons.	Per cent.
Mobile loading machines	16,432,000	20,078,000	+3,646,000	+22.2
Scraper loaders	1,550,000	1,648,000	+98,000	+6.3
Duckbills and other self-loading conveyors	1,309,000	1,487,000	+178,000	+13.6
Total loaded by machines	19,291,000	23,213,000	+3,922,000	+20.3
Pit-car loaders	14,979,000	19,066,000	+4,087,000	+27.3
Other hand-loaded conveyors	3,592,000	4,545,000	+953,000	+26.5

Increase in mechanical mining by States, 1929-1930.—Because of the business depression, the tonnage mined mechanically decreased in certain States, but in the majority there was a large increase. The fastest percentage growth was recorded in Alabama where a number of new installations, especially of pit-car loaders, caused a gain of more than 120 per cent over the year preceding. Next in point of increase came Pennsylvania with a gain of 66.2 per cent, followed by Montana with 57.5, Illinois with 24.9, Kentucky with 21.8, and "all other States" with 22.9 per cent. The small decreases in Wyoming, Utah, and the Virginias were chiefly due to the decline in total production, for in many districts in these States the per cent of the output attained by mechanized mining was higher than ever before.

TABLE III—INCREASE OR DECREASE IN TOTAL TONNAGE MECHANICALLY MINED, 1929-1930.

State.	1929	1930	Increase or decrease.	
			Net tons.	Per cent.
Illinois	18,252,000	22,803,000	+4,551,000	+24.9
Indiana	3,274,000	3,503,000	+229,000	+7.0
Pennsnlvania	4,234,000	7,035,000	+2,801,000	+66.2
Wyoming	3,002,000	2,865,000	—137,000	—4.6
Utah	920,000	862,000	—58,000	—6.3
Montana	708,000	1,115,000	+407,000	+57.5
Kentucky	812,000	989,000	+177,000	+21.8
West Virginia	2,698,000	3,079,000	—603,000	—16.4
Virginia	984,000			
Alabama	934,000	2,060,000	+1,126,000	+120.6
Other States (a)	2,044,000	2,513,000	+469,000	+22.9
Total	37,862,000	46,824,000	+8,962,000	+23.7

(a) Ohio, Washington, Arkansas, Colorado, Missouri, Oklahoma, Tennessee, Maryland, New Mexico, North Carolina, and Iowa.

Production by types of machines by States.—It is not feasible to show each type of machine in each State, for that would involve disclosure of individual operations. Table IV, however, breaks down the total into two major types. The first column shows the tonnage loaded without hand shoveling, that is by mobile loading machines, scrapers, and duckbills. Illinois, with 10,010,000 tons is far in the lead; second place is held by Pennsylvania and third by Wyoming. The second column covers the machines that require hand shoveling, that is pit-car loaders and hand-loaded face conveyors. In this group, also, Illinois is far in the lead, with 12,793,000 tons. Pennsylvania again is second, Alabama is third, and Indiana fourth.

In the total tonnage produced by mechanical mining of all types, Illinois has first place, followed by Pennsylvania, Indiana, Wyoming, West Virginia (not including Virginia), Alabama, and Montana, in the order named.

TABLE IV—TOTAL TONNAGE PRODUCED BY LOADING MACHINES, PIT-CAR LOADERS, AND CONVEYORS IN 1930, BY STATES.

State.	Loaded by machine.	Handled on pit-car loaders and hand-loaded conveyors.	Total produced by mechanized mining.
Illinois	10,010,000	12,793,000	22,803,000
Pennsylvania	2,887,000	4,148,000	7,035,000
Indiana	1,714,000	1,789,000	3,503,000
Wyoming	2,448,000	417,000	2,865,000
West Virginia and Virginia	2,245,000	834,000	3,079,000
Alabama	215,000	1,845,000	2,060,000
Utah	842,000	20,000	862,000
Kentucky	420,000	569,000	989,000
Montana	926,000	189,000	1,115,000
Other States (a)	1,506,000	1,007,000	2,513,000
Total	23,213,000	23,611,000	46,824.000

(a) Ohio, Washington, Arkansas, Colorado, Missouri, Oklahoma, Tennessee, Maryland, New Mexico, North Carolina, and Iowa.

Rank of States in per cent of output mechanized.—A fairer test of the progress of mechanization is the percentage of the total deep-mined output of the State which is produced by mechanized mining. Judged by this standard the high-wage-rate fields of the Rocky Mountains and the Middle West lead in the proportion mechanized. The honor of first place in 1930 was attained by Montana, in which 62.6 per cent of the deep-mined tonnage was won by mechanized mining. Next in rank came Wyoming and Illinois, with slightly more than 48 per cent, Indiana with 33.8 per cent, and Utah with 20.2 per cent. Among the southern States, Alabama was far in the lead.

Table V—Rank of states in percentage of total bituminous deep-mined output produced by mechanized mining in 1930.

State.	Percentage loaded by machine.	Percentage handled on pit-car loaders and hand-loaded conveyors.	Total percentage mined mechanically.
Montana	52.0	10.6	62.6
Wyoming	41.5	7.1	48.6
Illinois	21.2	27.1	48.3
Indiana	16.5	17.3	33.8
Utah	19.7	.5	20.2
Alabama	1.4	12.3	13.7
Pennsylvania	2.3	3.4	5.7
West Virginia and Virginia	1.7	.6	2.3
Kentucky	.9	1.1	2.0
United States	5.2	5.3	10.5

Number of machines in use.—The total number of machine-loading devices in use in 1930 was 819, of which 544 were mobile loading machines, 146 were scrapers, and 129 were duckbills or other self-loading conveyors. These figures do not include machines used for experimental purposes only for machines installed in mines that were idle throughout the year. The total number of pit-car loaders in use during 1930 was 2,869, and conveyors (other than pit-car loaders) were used in 142 mines.

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C. P. White, *Head, Coal Division.*

Explosives Used in Mining Coal.

From the earliest record to the close of the last century, black blasting powder was the only explosive used for blasting coal. Because of the waste and the danger attending its use, experimentations began in seeking to find a substitute which would be as efficacious in blasting coal and less hazardous in its use. These experiments resulted in discovering a compound which received the name "permissible explosives." For several years this explosive was used in a limited way in a few mines. The element of safety in the use of "permissibles" had so recommended itself, that, by 1915, this form of explosive was coming into general use, and in that year 1,342,334 pounds were used, and its consumption has steadily increased.

In recent years pellet powder and Cardox have been used as explosives in a few mines. In 1929 there were used in the shipping mines 2,369,696 pounds of pellet powder and in 1930, 998,551 pounds of this explosive, 30,029 shells of Cardox and a small quantity of R.X.L. were used. A large quantity of dynamite has been used in the mines, but, as we have no figures on the amount used for blasting coal, it is omitted from the following table and only black blasting powder and permissible explosives are shown. The table is arranged to show, by years, the amount of powder and permissibles consumed and the production of coal in tons.

TABLE 22—EXPLOSIVES USED FOR BLASTING COAL.

Year.	Blasting powder—Kegs.	Permissible explosives—pounds.	Tons mined.	Year.	Blasting powder—Kegs.	Permissible explosives—pounds.	Tons mined.
1930	455,980	3,971,130	54,035,116	1905	938,500	------------	37,183,374
1929	414,271	3,910,677	61,127,759	1904	923,418	------------	37,077,897
1928	671,703	3,591,660	56,211,082	1903	806,311	------------	34,955,400
1927	623,773	2,587,327	46,949,700	1902	637,448	------------	30,021,300
1926	873,797	3,458,239	69,813,255	1901	477,612	------------	26,685,319
1925 (a)	2,139,478	5,648,042	103,186,166	1900	490,713	------------	25,153.929
1924	1,229,859	3,299,727	72,308,665	1899	201,285	------------	23,434,445
1923	1,357,369	2,955,608	75,514,095	1898	379,986	------------	18,599,299
1922	1,184,200	2,337,980	63,276,827	1897	392,133	------------	20,072,758
1921	1,593,527	2,621,006	80,121,948	1896	318,275	------------	19,786,626
1920	1,367,885	2,405,356	73,920,653	1895	323,143	------------	17,735,864
1919	1,602,008	2,461,331	75,099,784	1894	237,563	------------	17,113,576
1918	1,965,060	2,064,041	89,979,469	1893	341,415	------------	19,949,564
1917	1,522,363	1,827,501	78,983,517	1892	288,774	------------	17,862,276
1916	1,150,504	1,536,726	63,673,530	1891	252,751	------------	15,660,698
1915	1,107,326	1,342,334	57,601,694	1890	233,739	------------	12,638,364
1914	1,264,288	------------	60,715,795	1889	198,831	------------	11,597,963
1913	1,309,382	------------	61,846,204	1888	190,710	------------	11,855,188
1912	1,313,448	------------	57,514,240	1887	128,486	------------	10,278,890
1911	1,239,293	------------	50,165,099	1886	127,099	------------	9,246,435
1910	1,254,095	------------	48,717,853	1885	140,382	------------	9,791,874
1909	1,280,607	------------	49,163,710	1884	144,378	------------	10,101,004
1908	1,328,454	------------	49,272,436	1883	131,360	------------	10,508,785
1907	1,261,910	------------	47,798,621	1882	113,946	------------	9,115,661
1906	1,027,473	------------	38,317,581	------------	------------	------------	------------

(a) From July 1, 1924, to December 31, 1925.

FATALITIES.

Beginning with the year 1882, reports have been made each year of all employees who have lost their lives in and about the mines of the State. These reports are made after a careful investigation of the cause by the State inspector of the district in which the mine is located and published in the Annual Coal Report.

A careful summary of these reports reveals the fact that 6,477 men forfeited their lives while in the line of duty and that 59,836 sustained injuries resulting in a loss of thirty or more days time to each man.

How many of these accidents might have been prevented it is impossible to say, but an analysis of the causes is conclusive that, if the proper precautions had been taken by the management, other employees and by the victim himself, many of them—perhaps more than half—would not have happened.

Fifty to sixty deaths per year is too large a toll to pay for carelessness. These voidable accidents must be reduced to a minimum and it is gratifying to know that they are decreasing each year. This decrease in voidable accidents is, no doubt, due largely to the training the men have received, to the increasing efficiency of the mine inspection service and to the rigid examination the miner is subjected to before he is allowed to engage in the occupation of mining coal. In substantiation of this conclusion, we find that, from 1882 to 1913, 234,317 tons were mined and 398 employed to one man killed; while, from 1913 to 1930, 404,803 tons were mined and 480 employed to each life lost.

It is not claimed, however, that the causes above referred to are the only ones which have brought about the reduction in fatalities or increased production to one man killed. There are other contributing causes. Among them may be mentioned electrification and mechanization of the mines. To facilitate the study of the effect of these causes on the ratio of production to fatalities, the time from 1882 to 1930 has been divided into four periods.

In the first period, 1882-1887, six years, nearly all mining was done by hand. During this period 59,042,649 tons were mined; the average number of employees was 24,733 and the fatalities were 352.

The second period, 1888-1901, is for the time from the year when the production of mining machines was first reported, to and including 1901, a series of 14 years. During this period, 258,095,869 tons of coal were produced, an average of 35,237 men employed and 981 fatalities.

The third period is for a series of 25 years and extends from 1902, the first recorded use of electric motors in underground haulage, to 1926. During this period the mines produced 1,506,229,113 tons, employed an average for each year of 77,314 men and had a fatality list of 4678.

The fourth period, four years, is from 1927, the introduction of mechanical loading devices, to December 31, 1930. The mines in these four years yielded 218,323,657 tons, the average number employed was 64,672 and 466 men were killed.

The following table shows the tonnage mined, average number employed, the number killed, the tons mined to one fatality and the number killed to 1000 employed and to 1,000,000 tons mined.

TABLE 23.

Periods	Tons mined	Average number employed.	Number killed.	Tons mined to one killed.	Number killed to	
					1,000 employed.	1,000,000 tons mined.
FIRST— 1882-1887 Six years.	59,042,649	24,733	352	167,735	2.4	5.96
SECOND— 1888-1901 Fourteen years.	258,095,869	35,237	981	263,146	2.0	3.8
THIRD— 1902-1926 Twenty-five years.	1,506,229,113	77,314	4,678	321,981	2.4	3.1
FOURTH— 1927-1930 Four years.	218,323,657	64,672	466	468,506	1.8	2 1

In the following table the ratio of fatal and non-fatal accidents to 1000 men employed and to 1,000,000 tons of coal mined is shown by years, 1882-1930. From this table it will be seen that the fewest fatalities per 1000 employees were during the year 1927, and the years 1925 and 1929 are lowest in the loss of life per 1,000,000 tons produced.

Table 24—Tons of coal mined, number employed, number killed and injured, tons mined to one man killed and injured and ratios per 1000 employed and per 1,000,000 tons mined, 1882-1930.

Year.	Tons mined.	Number employed.	Accidents.		Tons mined to 1 man.		Accidents.			
							Per 1,000 employed.		Per 1,000,000 tons mined.	
			Fatal.	Non-Fatal.	Killed.	Injured.	Fatal.	Non-Fatal.	Fatal.	Non-Fatal.
1882	9,115,661	20,290	40	50	227,892	182,313	2.0	2.5	4.4	5.5
1883	10,508,785	23,939	134	231	78,424	45,493	5.6	9.1	12.8	22.0
1884	10,101,004	25,575	46	197	219,587	51,274	1.8	7.7	4.6	19.5
1885	9,791,874	25,946	39	147	251,074	66,611	1.5	5.7	4.0	15.0
1886	9,246,435	25,846	52	171	177,816	54,073	2.0	6.6	5.6	18.5
1887	10,278,890	26,804	41	180	250,905	57,105	1.5	6.7	4.0	17.5
1888	11,855,188	29,410	55	179	215,549	66,230	1.9	6.1	4.7	15.1
1889	11,597,963	30,076	42	201	276,142	57,701	1.4	6.7	3.6	17,3
1890	12,638,364	28,574	53	294	238,460	42,988	1.9	10.3	4.2	23.4
1891	15,660,698	32,951	60	367	261,012	42,672	1.9	11.1	3.9	23.4
1892	17,862,276	33,632	57	370	313,373	48,276	1.7	11.0	3.2	20.7
1893	19,949,564	35,390	69	403	289,124	49,502	1.9	11.4	3.5	20.2
1894	17,113,576	38,477	72	521	237,690	32,848	1.9	13.5	4.2	30.4
1895	17,735,864	38,630	75	605	236,478	29,315	1.9	15.7	4.2	34.1
1896	19,786,626	37,032	77	672	256,969	29,444	2.1	18.1	3.9	34.0
1897	20,072,758	33,788	69	518	290,909	38,750	2.0	15.3	3.4	25.8
1898	18,599,299	35,026	75	438	247,991	42,464	2.1	12.5	4.0	23.5
1899	23,434,445	36,901	84	597	278,981	39,254	2.3	16.2	3.6	25.5
1900	25,153,929	39,384	94	611	267,559	41,168	2.4	15.5	3.7	24.3
1901	26,635,319	44,143	99	422	269,549	63,235	2.2	9.6	3.8	15.8
1902	30,021,300	46,003	99	406	303,245	73,944	2.2	8.8	3.3	13.5
1903	34,955,400	49,814	156	410	224,073	85,257	3.1	8.2	4.5	11.7
1904	37,077,897	54,774	157	507	236,165	73,132	2.9	9.3	4.2	13.7
1905	37,183,374	59,230	199	535	185,852	69,502	3.4	9.0	5.4	14.4
1906	38,317,581	62,283	155	480	247,210	79,828	2.5	7.7	4.0	12.5
1907	47,798,621	66,714	165	636	289,689	75,155	2.5	9.5	3.5	13.3
1908	49,272,436	70,841	183	819	269,248	60,162	2.6	11.6	3.7	16.6
1909	49,163,710	72,733	213	894	230,816	54,993	2.9	12.3	4.3	18.2
1910	48,717,853	74,634	406	742	119,995	65.657	5.4	9.9	8.3	15.2
1911	50,165,099	77,410	157	709	319,523	70,755	2.0	9.2	3.1	14.2
1912	57,514,240	79,411	180	800	315,524	71,893	2.3	10.7	3.1	13.9
1913	61,846,204	79,497	175	1,025	353,407	60,338	2.2	12.9	2.8	16.2
1914	60,715,795	80,035	159	1,079	381,860	56,691	2.0	13.4	2.6	17.6
1915	57,601,694	75,607	180	1,013	320,009	56,870	2.4	13.4	3.1	17.6
1916	63,673,530	75,919	165	1,305	385,900	48,792	2.2	17.2	2.6	20.5
1917	78,983,517	80,893	207	1,634	381.563	48,338	2.6	20.2	2.6	20.7
1918	89,979,469	91,372	259	2,161	347,411	41,638	2.8	23.7	2.9	24.0
1919	75,099,784	90,897	208	2,620	361,057	28,664	2.3	28.8	2.8	34.9
1920	73,920,653	88,192	181	3,571	408,401	20,700	2.5	40.5	2.4	48.3
1921	80,121,948	95,763	222	4,327	360,910	18,517	2.3	45.2	2.8	54.0
1922	63,276,827	98,090	159	3,879	397,962	16,315	1.6	39.5	2.5	61.3
1923	75,514,095	103,566	161	3,615	469,032	20,889	1.6	34.9	2.1	47.9
1924	72,308,665	99,765	184	3,895	392,982	18,565	1.8	39.0	2.5	53.9
1925*	103,186,166	81,684	183	4,712	563,859	21,713	2.4	57.7	1.8	46.0
1926	69,813,255	77,732	165	3,083	423,111	22,642	2.1	39.7	2.4	44.2
1927	46,949,700	78,572	106	1,398	442,922	33,583	1.3	18.0	2.3	29.8
1928	56,211,082	65,508	139	2,176	404,396	25,832	2.1	33.2	2.5	38.7
1929	61,127,759	58,596	109	2,392	560,805	25,556	1.9	40.8	1.8	39.1
1930	54,035,116	56,011	112	1,837	482,456	29,415	2.0	32.8	2.07	34.0

*July 1, 1924, to December 31, 1925.

Note—From 1882 to 1890 only net tons are shown.

The next table is prepared to show where the accident happened and the cause of the fatality, by years, 1882 to 1930, and is followed by a summary with percentages of each cause.

TABLE 25—FATAL ACCIDENTS BY YEARS, SHOWING CAUSES AND PLACE WHERE ACCIDENT HAPPENED.

Year.	Total number killed.	Underground.							In Shaft.				On Surface.			
		Falls of roof and sides.	Gas explosions.	Haulage.	Electricity.	Explosives.	Other causes.	Total.	Falling down shaft.	Cage.	Other causes.	Total.	Machinery.	Railway cars.	Other causes.	Total.
1882	40	26	----	----	----	5	9	40	----	----	----	----	----	----	----	----
1883	134	40	12	2	----	2	a 78	134	----	----	----	----	----	----	----	----
1884	46	29	4	----	----	6	7	46	----	----	----	----	----	----	----	----
1885	39	20	----	----	----	----	b 19	39	----	----	----	----	----	----	----	----
1886	52	32	----	5	----	10	----	47	1	4	----	5	----	----	----	----
1887	41	28	----	----	----	----	b 13	41	----	----	----	----	----	----	----	----
1888	55	33	----	6	----	9	----	48	4	2	----	6	----	1	----	1
1889	42	26	----	5	----	3	1	35	2	4	1	7	----	----	----	----
1890	53	36	5	3	----	4	----	48	----	4	----	4	----	1	----	1
1891	60	33	4	2	----	11	1	51	1	4	2	7	----	2	----	2
1892	57	28	3	6	----	4	3	44	8	4	----	12	----	1	----	1
1893	69	48	2	2	----	6	2	60	3	4	1	8	----	1	----	1
1894	72	43	----	6	----	8	----	57	5	8	----	13	----	2	----	2
1895	75	38	5	6	----	12	2	63	5	4	1	10	1	1	----	2
1896	77	41	2	9	----	9	2	63	6	5	----	11	1	1	1	3
1897	69	46	2	1	----	11	----	60	6	----	1	7	1	1	----	2
1898	75	43	7	3	----	11	2	66	4	2	----	6	1	1	1	3
1899	84	51	5	6	----	6	6	74	4	5	----	9	----	1	----	1
1900	94	51	1	11	----	20	----	83	1	4	2	7	2	2	----	4
1901	99	57	1	14	----	20	3	95	1	1	----	2	----	----	2	2
1902	99	55	----	15	----	17	1	88	7	2	----	9	----	2	----	2
1903	156	77	8	18	1	41	2	147	2	6	----	8	----	----	1	1
1904	157	65	----	21	1	44	3	134	10	4	----	14	6	2	1	9
1905	199	80	59	11	1	32	3	186	5	6	1	12	----	1	----	1
1906	155	84	2	22	----	22	1	131	9	5	1	15	3	4	2	9
1907	165	84	4	29	1	25	2	145	6	8	----	14	----	4	2	6
1908	183	91	7	35	1	29	1	164	3	1	3	7	4	8	----	12
1909	213	84	44	30	2	29	1	190	5	4	1	10	3	8	2	13
1910	406	65	20	23	3	17	258	386	3	6	----	9	3	5	3	11
1911	157	80	8	40	1	10	4	143	5	2	2	9	----	2	3	5
1912	180	98	3	38	3	13	12	167	6	3	----	9	----	2	2	4
1913	175	81	10	50	6	10	5	162	5	4	1	10	----	2	1	3
1914	159	83	6	40	6	6	7	148	2	1	----	3	----	4	4	8
1915	180	57	68	27	2	9	12	175	1	----	2	3	----	2	----	2
1916	165	80	12	43	4	13	1	153	4	----	----	4	2	6	----	8
1917	207	77	19	67	7	12	3	185	----	4	1	5	5	9	3	17
1918	259	100	27	70	13	20	4	234	8	8	2	18	----	4	3	7
1919	208	93	31	51	7	12	1	195	4	4	2	10	----	2	1	3
1920	181	91	7	41	14	9	5	167	8	2	----	10	1	2	1	4
1921	222	112	6	54	9	20	8	209	2	4	----	6	1	4	2	7
1922	159	71	15	29	8	17	7	147	2	1	3	6	----	5	1	6
1923	161	82	2	40	6	13	6	149	3	1	1	5	----	4	3	7
1924	184	76	40	37	5	10	8	176	2	----	2	4	2	2	----	4
1925 (c)	183	89	5	46	12	11	9	172	1	2	----	3	3	3	2	8
1926	165	85	13	39	5	7	4	153	7	1	1	9	1	1	1	3
1927	106	44	17	18	5	5	8	97	3	1	----	4	2	2	1	5
1928	139	72	23	21	2	6	5	129	1	1	----	2	1	4	3	8
1929	109	52	8	24	5	6	5	100	1	2	----	3	2	2	2	6
1930	112	72	4	20	3	2	5	106	----	1	----	1	1	2	2	5

a Sixty-nine men were drowned in the Braidwood mine disaster.
b Other causes not classified.
c From July 1, 1924, to December 31, 1925.

TABLE 26—SUMMARY OF FATALITIES—NUMBER KILLED UNDERGROUND, IN SHAFT AND ON SURFACE, BY CAUSES, WITH PERCENTAGES OF EACH CAUSE.

WHERE EMPLOYED.

Underground.			In Shaft.			On Surface.		
Cause.	Killed.	Per cent.	Cause.	Killed.	Per cent.	Cause.	Killed.	Per cent:
Falls	3,029	51.3	Fall down shaft	166	49.4	Machinery	46	22.0
Gas explosions	521	8.7	Cages	139	41.4	Railway cars	113	54.1
Haulage	1,086	18.3	Other causes	31	9.2	Other causes	50	23.9
Electricity	133	2.2						
Explosives	622	10.5						
Other causes	539	9.0						
Total	5,932	100.0		336	100.0		209	100.0

CHANGES IN CORPORATE NAMES.

Prior to 1902 the mines were not designated as "shipping and local," but were all listed together. It is, therefore, difficult to make an accurate tracing of the mines opened prior to that date.

In 1912, a list of the shipping mines then in existence was sent to the State Inspectors, with the request that they furnish certain information, including the year the mine was opened and the total tons mined, as nearly as could be estimated.

In some instances, no doubt, the estimate of tons of coal produced is erroneous, but a careful check with the coal reports shows a comparatively close agreement.

These reports, together with the same information about the mines opened since, have been made a matter of record, and from this record, data has been compiled concerning each of the 272 mines now in operation, including those temporarily closed.

The following list is prepared for the purpose of showing the name of the mine at the time the information was received, the change or changes in ownership, by references, the post office of the mine, the year opened, depth of shaft, thickness and geological number of seam, by Counties.

BOND COUNTY

Name of Operator in 1911.	Post office of mine.	Year opened.	Depth of shaft.	Thickness of vein.	Geological number of seam.
Pocahontas M. Co. (a)	Pocahontas	1906	400.	7.6'	6

(a) 1930 changed to Bond County Coal Co.

BUREAU COUNTY.

Cherry Coal Co. (a)	Cherry	1929	321.	4.6'	6

(a) Second vein of St. Paul Coal Co. No. 2.

CHRISTIAN COUNTY.

Name of Operator in 1911.	Postoffice of mine.	Year opened.	Depth of shaft.	Thickness of vein.	Geological number of seam.
Assumption Coal Co. (a)	Assumption	1887	1.004.	7.	1
Illinois-Midland Coal Co. (b)	Kincaid	1912	357.	8.	6
Pana Coal Co. No. 1	Pana	1884	728.	7.6'	6
Pana Coal Co. No. 2	Pana	1906	732.	7.6'	6
Penwell Coal Co.	Pana	1889	730.	7.6'	6
Smith-Lohr Coal Co. (c)	Pana	1906	720.	7.6'	6
Springfield C. M. Co. No. 6 (d)	Taylorville	1887	495.	8.	6
Stonington Coal Co. (e)	Stonington	1906	460.	7.6'	6
C. W. Vandive Coal Co. (f)	Edinburg	1888	365.	7.	6
Peabody Coal Co., No. 8	Tovey	1913	373.	7.	6
Peabody Coal Co., No. 9	Taylorville	1919	410.	8.	6

(a) 1929 changed to Silver Creek Coal Co. 1930 changed to Victory Coal Co.
(b) 1916 changed to Peabody No. 7.
(c) 1916 changed to Springside Coal Co.
(d) 1924 changed to Peabody Coal Co., No. 58.
(e) 1916 changed to Peabody Coal Co., No. 21.
(f) 1910 changed to Greenwood Coal Co.; 1919 changed to Christian County Mining Co.; 1926 changed to Quality Coal Co.; 1928 changed to H. F. Young Coal Co.; 1930 changed to Young & Tex Coal Co.

CLINTON COUNTY.

Breese-Trenton Mining Co., East	Breese	1887	400.	7.6'	6
Brese-Trenton Mining Co., Beck.	Beckemeyer	1905	415.	8.	6
North Breese C. M. Co. (a)	Breese	1905	400.	7.	6
Southern C. C. & M. Co., No. 9	New Baden	1897	318.	8.	6

(a) 1922 changed to Breese-Trenton Mining Co., North.

FRANKLIN COUNTY.

Benton Coal Co., No. 1 (a)	Benton	1904	620.	10.	6
Big Muddy-Carterville Coal Co. (b)	Royalton	1905	214.	9.6'	6
Carroll & Franklin County Coal Co. (c)	Logan	1909	693.	8.	6
Christopher C. M. Co., No. 1 (d)	Christopher	1913	593.	10.	6
Brazil Block Coal Co., No. 11 (e)	West Frankfort	1905	517.	9.6'	6
Brazil Block Coal Co., No. 18 (f)	West Frankfort	1907	510.	10.	6
Hart-Williams Coal Co. (g)	Benton	1907	630.	10.	6
Middle Fork C. M. Co. (h)	Benton	1916	600.	7.8'	6
Modern Coal Co. (i)	Sesser	1918	668.	9.	6
Ohio Valley M. Co. (j)	West Frankfort	1910	465.	9.3'	6
W. P. Rend Col. Co. (k)	Rend	1907	567.	9.	6
Sesser Coal Co. (l)	Sesser	1907	647.	8.8'	6
Southern Ill. C. & C. Co. (m)	Herrin	1908	350.	9.	6
United C. M. Co., No. 1 (n)	Christopher	1906	500.	9.6'	6
United C. M. Co., No. 2 (o)	Buckner	1911	458.	9.6'	6
West Frankfort C. Co. (p)	West Frankfort	1910	450.	9.10'	6
Zeigler C. Co., No. 1 (q)	Zeigler	1904	418.	12.	6
Zeigler Dist. C. Co. (r)	Christopher	1906	517.	9.6'	6
Brell & Zoller M. Co., No. 2	Zeigler	1918	310.	12.	6
Franklin Co. M. Co.	Benton	1918	620.	8.	6
C W. & F. C. Co., No. 1	Orient	1913	504.	9.6'	6
C.W. & F. C. Co., No. 2	West Frankfort	1923	643.	9.6'	6
Old Ben Coal Corp., No. 9	West Frankfort	1913	470.	9.6'	6
Old Ben Coal Corp., No. 15	Ezra	1913	470.	9.6'	6
Valier Coal Co.	Valier	1918	610.	9.	6
Western C. & M. Co., No. 2	Bush	1917	152.	10.6'	------------

(a) 1922 changed to C. W. & F. C. Co., No. 1.
(b) 1916 changed to Franklin C. & C. Co., No. 1; 1924 changed to Franklin Co. Coal Co., No. 1.
(c) 1914 changed to Benton Dist. C. Co.; 1916 to John A. Logan C. Co.; 1918 to Black Star C. Co.
(d) 1917 changed to Old Ben C. Corp., No. 10.
(e) 1913 changed to Dering C. Co., No. 11; 1916 changed to Producers Coal Co., No. 18; 1918 changed to Industrial C. Co., No. 18; 1928 changed to Peabody C. Co., No. 18.
(f) 1913 changed to Dering C. Co., No. 18; 1916 changed to Producers C. Co., No. 19; 1918 changed to Industrial C. Co., No. 19; 1928 changed to Peabody C. Co., No. 19.
(g) 1917 changed to Taylor M. Co., No. 6; 1917 changed to Benton C. Co., No. 2; 1922 changed to C. W. & F. C. Co., No. 2.
(h) 1917 changed to U. S. Fuel Co.
(i) 1920 changed to Southern Gem C. Co., No. 2; 1927 changed to Brewerton C. Co., No. 22.
(j) 1913 changed to Old Ben C. Corp., No. 8.
(k) 1920 changed to Old Ben C. Corp., No. 19.
(l) 1922 changed to Old Ben C. Corp., No. 16.

(m) 1915 changed to Taylor M. Co., No. 5; 1916 changed to Franklin Co. C. Co., No. 5.
(n) 1917 changed to Old Ben C. Corp., No. 12.
(o) 1917 changed to Old Ben C. Corp., No. 14.
(p) 1920 changed to Southern Gem C. Corp., No. 1; 1927 changed to Brewerton C. Co., No. 21.
(q) 1911 changed to Bell & Zoller C. Co., No. 1.
(r) 1914 changed to Christopher C. M. Co., No. 2; 1917 changed to Old Ben C. Corp., No. 11.

FULTON COUNTY.

Name of Operator in 1911.	Postoffice of mine.	Year opened.	Depth of shaft.	Thickness of vein.	Geological number of seam.
Canton Coal Co.	Canton	1906	58.	5.	5
United Electric C. Co., No. 9	Cuba	1924	strip	4.7'	5
Alden C. Co., No. 8 (a)	Farmington	1915	78.	4.	5
National C. M. Co. (b)	Middlegrove	1908	100.	4.4'	5
Truax-Traer C. Co.	St. David	1929	strip	4.6'	5
Alden C. Co., No. 5 (c)	Farmington	1892	170.	4.2'	5
Rawalt Coal Co.	Canton	1919	drift	5.	5
Putnam Coal Co.	Breeds	1925	drift	4.6'	5

(a) Changed to Kickapoo Coal Co., 1926; 1927 changed to Dorthel C. Co., No. 2
(b) 1926 changed to Hanna City C. Co., No. 2; 1927 changed to Dorthel C. Co., No. 3.
(c) 1928 changed to Illinois Col. Co.

GALLATIN COUNTY.

Gallatin C. & C. Co. (a)	Equality	1882	90.	4.10'	5

(a) 1924 changed to Equality Coal Co.; 1927 changed to Saline Gas Coal Co., No. 4; 1930 changed to Illinois Saline C. Co.

GRUNDY COUNTY.

Leland Coal Co. (a)	Verona	1924	96.	7.5'	2

(a) 1925 changed to Verona Coal Co.; 1926 changed to Sunlight Coal Co

HENRY COUNTY.

Schuler C. M. Co.	Alpha	1922	270.	4.5'	1
Midland Electric C. Co.	Atkinson	1929	strip	2.	2

JACKSON COUNTY.

Muddy Valley Coal Co. (a)	Hallidaybro	1888	165.	9.	7
Peacock Coal Co. (b)	De Soto	1910	50.	12.	6
De Soto-Peacock Co.	De Soto	1915	slope	6.	6
Forsyth C. Co. (c)	De Soto	1925	strip	7.5'	6
Black Servant C. Co. (d)	Elkville	1924	strip	5.8'	6
Murphysboro M. Co. (e)	Ava	1925	80.	4.	2
Union Col Co.	Dowell	1918	265.	8.3'	6

(a) 1917 changed to Jackson Coal Co.
(b) 1920 changed to Midway Coal Co.; 1923 changed to Chicago Fuel Co.
(c) 1928 changed to Truax-Traer Coal Co., No. 2.
(d) 1928 changed to Truax-Traer Coal Co., No. 1.
(e) 1929 changed to Spirit of Egypt Coal Co.

JEFFERSON COUNTY.

Ill. Coal Corp., No. 10	Nason	1923	720.	8.5'	6

KNOX COUNTY.

Galesburg M. Co.	Galesburg	1925	110.	4.5'	1

LA SALLE COUNTY.

Cahill Coal Co. (a)	Peru	1879	260.	3.6'	2
La Salle Co. C. C. Co., No. 1	La Salle	1865	440.	3.6'	2
La Salle Co. C. C. Co., L. S.	La Salle	1856	400.	3.6'	2
La Salle Co. C. C. Co. Union (b)	Peru	1871	420.	3.4'	2

(a) 1913 changed to Ill. Zinc Co., No. 3.
(b) 1930 changed to Union Coal Co.

LOGAN COUNTY.

Latham C. Co. (a)	Lincoln	1900	280.	5.2'	5

(a) 1921 changed to Sangamon C. M. Co.; 1922 changed to Brewerton Coal Co., No. 92.

MACON COUNTY.

Decatur C. Co., No. 2 (a)	Decatur	1884	612.	4.6'	5

(a) 1925 changed to Macon Co. Coal Co., No. 2.

MACOUPIN COUNTY.

Consolidated C. Co., No. 7	Staunton	1886	322.	6.	6
Consolidated C. Co., No. 14	Staunton	1903	276.	7.	6
Consolidated C. Co., No. 15	Staunton	1904	364.	8.	6
Madison C. Corp., No. 5 (a)	Mt. Olive	1887	420.	8.	6
Carlinville M. Co. (b)	Carlinville	1919	250.	7.	6
Gillespie C. Co.	Gillespie	1920	348.	7.	6
Glen Ridge C. Co. (c)	Virden	1893	320.	7.6'	6
Girard Coal Co. (d)	Girard	1867	352.	7.	6
Vivian Col. Co. (e)	Glen Ridge	1896	365.	6.6'	6
Perry Coal Co.	Gillespie	1923	386.	9.	6
Carlinville Coal Co. (f)	Carlinville	1885	270.	6.	6
Standard Oil Co., No. 2	Carlinville	1918	319.	7.	6
Superior C. Co., No. 1	Gillespie	1904	348.	8.	6
Superior C. Co., No. 2	Gillespie	1904	324.	8.	6
Superior C. Co., No. 3	Gillespie	1904	350.	8.	6
Superior C. Co., No. 4	Gillespie	1918	312.	7.5'	6

(a) 1917 changed to Mt. Olive Coal Co.; 1922 changed to Madison C. Corp., No. 5.
(b) 1920 changed to Bartels C. Co.; 1925 changed to South Mine C. Co.
(c) 1914 changed to Montour C. Co., No. 402; 1922 changed to Ill. C. Corp., No. 3.
(d) 1914 changed to Montour C. Co., No. 403; 1922 changed to Ill. C. Corp., No. 4.
(e) 1916 changed to Middle States Fuel Co.; 1922 changed to Union Fuel Co., No. 6.
(f) Changed to Standard Oil Co., No. 1.

MADISON COUNTY.

City Coal Co. (a)	Edwardsville	1879	222.	6.	6
Donk Bros. Coal Co., No. 3 (b)	Troy	1900	274.	5.	6
Home Trade C. Co. (c)	Edwardsville	1898	135.	5.	6
Jay Coal Co. (d)	Bethalto	1921	70.	4.6'	6
Bullock M. Co.	Collinsville	1898	170.	6.6'	6
Bunker Hill C. Co.	Bunker Hill	1921	200.	6.	6
Collinsville C. Corp.	Collinsville	1925	100.	7.	6
Donk Bros. C. Co., No. 4 (e)	Edwardsville	1920	207.	6.	6
East Side C. Co.	Edwardsville	1910	135.	6.	6
Lumaghi C. Co., No. 2	Collinsville	1901	193.	8.6'	6
Lumaghi C. Co., No. 3	Collinsville	1903	165.	8.	6
Madison C. Corp., No. 2	Glen Carbon	1891	110.	6.6'	6
Mt. Olive & Staunton C. Co., No. 2	Staunton	1904	300.	7.	6
New Staunton C. Co.	Livingston	1904	287.	6.	6

(a) 1917 changed to Beck-White C. Co.; 1921 changed to New Castle Coal Co.; 1925 changed to Henrietta Coal Co.
(b) 1923 changed to Troy Coal Co.
(c) 1917 changed to Madison Co. M. Co.; 1926 changed to O. L. Winkle C. Co.; 1929 changed to Henrietta C. Co.
(d) 1926 changed to Carlin Coal Co.
(e) 1928 changed to Peabody C. Co., No. 17.

MARION COUNTY.

Chicago-Sandoval C. Co., No. 2 (a)	Sandoval	1905	607.	6.	6
Marion Co. Coal Co.	Centralia	1908	600.	6.	6
Odin Coal Co.	Odin	1886	700.	7.	6

(a) 1924 changed to Franklin Co. Coal Co., No. 9.

MONTGOMERY COUNTY.

Name of Operator in 1911.	Postoffice of mine.	Year opened.	Depth of shaft.	Thickness of vein.	Geological number of seam.
Burnwell C. Co., No. 1 (a)	Witt	1903	534.	8′	6
Kort Kamp C. Co. (b)	Hillsboro	1903	470.	7′6″	6
Montgomery C. Co. (c)	Hillsboro	1907	470.	8′4″	6
Shoal Creek C. Co. (d)	Panama	1905	386.	7′	6
Nokomis C. Co. (c)	Nokomis	1913	640.	8′2″	6
Hillsboro C. Co.	Hillsboro	1887	456.	8′	6
Peabody C. Co., No. 10 (f)	Nokomis	1906	638.	8′6″	6

(a) 1913 changed to Peabody C. Co., No. 12; 1917 changed to C. & E. I. C. Corp., No. 12; 1919 changed to Ill. C. Corp., No. 12; 1921 changed to Ind. & Ill. C. Corp., No. 12.
(b) 1913 changed to Peabody C. Co., No. 11; 1916 changed to C. & E. I. C. Corp., No. 11; 1919 changed to Ill. C. Corp., No. 11; 1921 changed to Ind. & Ill. C. Corp., No. 11.
(c) 1913 changed to Peabody Coal Co., No. 15; 1917 changed to C. & E. I. C. Properties, No. 15; 1919 changed to Ill. Coal Properties, No. 15; 1921 changed to Ind. & Ill. C. Corp., No. 15.
(d) 1925 changed to Cosgrove-Meehan Coal Co., No. 5.
(e) 1922 changed to Ill. C. Corp., No. 9.
(f) 1916 changed to C. & E. I. Corp., No. 10; 1919 changed to Ill. C. Properties, No. 10; 1921 changed to Ind. & Ill. C. Corp., No. 10.

MOULTRIE COUNTY.

Lovington C. Co.	Lovington	1909	920.	8′	6

PEORIA COUNTY.

Crescent C. Co., No. 1	Peoria	1887	drift	4′6″	5
Applegate & Lewis C. Co. (a)	Hanna City	1908	250.	4′6″	5
Mapleton C. Co., No. 1 (b)	Mapleton	1907	drift	4′6″	5
Warsaw C. Co. (c)	Edwards	1906	drift	4′6″	5
Newsam Bros. C. Co., No. 5 (d)	Peoria	1920	slope	4′2″	5
Newsam Bros. C. Co., No. 6 (e)	Peoria	1922	slope	4′5″	5

(a) 1913 changed to Logan Coal Co.; 1924 changed to Hanna City Coal Co.; 1927 changed to Dorthel C. Co., No. 1
(b) 1918 changed to Foley C. Co.; 1920 changed to East Mapleton C. Co.
(c) 1921 changed to Central West C. Co.
(d) 1924 changed to Crescent C. Co., No. 5.
(e) 1924 changed to Crescent C. Co., No. 6.

PERRY COUNTY.

Bald Eagle M. Co. (a)	Craig	1904	256.	7′	6
Little Muddy Fuel Co. (b)	Tamaroa	1901	210.	6′	6
Majestic C. Co. (c)	Duquoin	1905	403.	9′	6
Ritchie C. Co. (d)	Pinckneyville	1909	160.	7′6″	6
St. Louis-Coulterville C. Co. (e)	Coulterville	1901	225.	7′	6
Allen C. Co. (f)	Cutler	1920	81.	6′	6
Ill. Sixth Vein C. Co. (g)	Pinckneyville	1919	132.	7′	6
Scott-Smith C. Co. (h)	Duquoin	1919	strip	6′	6
Soper C. Co., No. 2 (i)	Cutler	1918	110.	5′	6
Bailey Bro. C. Co.	Duquoin	1902	75.	5′	6
Gayle C. Co.	Duquoin	1925	strip	6′	6
x Pyramid C. Co.	Pinckneyville	1926	strip	5′6″	6
Security C. M. Co.	Duquoin	1910	91.	8′	6
Mo. & Ill. C. Co., No. 4 (j)	Willisville	1903	78.	6′	6
Wilson C. M. Co.	Cutler	1922	120.	6′	6
x United Electric C. Co., No. 11	Duquoin	1929	strip	6′	6

(a) 1916 changed to Crown C. Co.; 1920 changed to Columbia Col. Co.; 1928 changed to Delco M. Co.; 1930 changed to Egyptian C. Co.
(b) 1916 changed to Colliery C. Co.; 1921 changed to Aladin C. Co., No. 3; 1922 changed to Tamaroa-Little Muddy C. Co.; 1930 changed to Tamaroa Coal Co.
(c) Changed to Equitable C. Co.; 1922 changed to Crerar-Clinch C. Co.
(d) 1921 changed to Southern Gem C. Co., No. 5; 1927 changed to Brewerton C. Co., No. 45.
(e) 1918 changed to Perry C. Co.
(f) 1921 changed to Southern Gem C. Co., No. 7.
(g) 1924 changed to Southern Gem C. Co., No. 6.
(h) 1925 changed to Perfection C. Co.
(i) 1920 changed to Aladin C. Co., No. 2; 1924 changed to Southern Gem C. Co., No. 10; 1925 changed to Chicago Coll. Co., No. 2.
(j) 1918 changed to Willis C. & M. Co., No. 8.

RANDOLPH COUNTY.

Name of Operator in 1911.	Postoffice of mine.	Year opened.	Depth of shaft.	Thickness of vein.	Geological number of seam.
Bressemer W. C. Co. (a)	Tilden	1902	200.	7′	6
Ill. Fuel Co., No. 4 (b)	Sparta	1903	75.	6′	6
West Mine C. Co. (c)	Coulterville	1900	198.	6′	6
Jones Bros. C. Co., No. 2	Marissa	1904	185.	6′6″	6
Moffat C. Co.	Sparta	1903	125.	6′	6
Willis C. & M. Co., No. 6	Percy	1888	86.	6′	6
Willis C. & M. Co., No. 9	Percy	1918	42.	6′	6
Geo. Wilson C. Co.	Sparta	1925	128.	5′6″	6

(a) 1917 changed to Tilden C. Co.; 1918 changed to Madison Coal Corp.
(b) 1925 changed to Wall C. Co.; 1928 changed to Sparta C. Co.
(c) 1920 changed to St. Louis C. Co.

SALINE COUNTY.

Name of Operator in 1911.	Postoffice of mine.	Year opened.	Depth of shaft.	Thickness of vein.	Geological number of seam.
Saline Co. C. Co , No. 2 (a)	Harrisburg	1906	100.	7′	5
Saline Co. C. Co., No. 3 (b)	Harrisburg	1911	275.	7′	5
Harrisburg Southern C. Co. (c)	Eldorado	1905	337.	5′6″	5
Harrisburg C. I. Co. (d)	Harrisburg	1917	416.	5′6″	5
J. K. Dering C. Co., No. 2 (e)	Eldorado	1918	456.	6′	5
Dodds Coal Co.	Carrier Mills	1919	41.	5′	5
O'Gara C. Co., No. 1	Harrisburg	1905	311.	5′3″	5
O'Gara C. Co., No. 3	Harrisburg	1904	233.	6′3″	5
O'Gara C. Co., No. 8	Harrisburg	1904	393.	4′8″	5
O'Gara C. Co., No. 10	Harrisburg	1904	406.	4′8″	5
Harrisburg B. M. Co., No. 12 (f)	Harrisburg	1904	415.	5′	5
Harrisburg Col. Co., No. 15 (g)	Harrisburg	1909	58.	5′	5
Rhonda C. Co.	Harrisburg	1923	slope	5′	5
Saline Valley C. Co.	Harco	1918	slope	6′5″	5
Wasson C. Co., No. 1	Harrisburg	1907	320.	5′6″	5
Wasson C. Co., No. 2	Harrisburg	1916	slope	4′6″	5
Harrisburg M. Co., No. 8	Harrisburg	1927	strip	6′	5
Harrisburg M. Co., No. 9	Harrisburg	1927	slope	5′	5
Big Creek C. Co., No. 4 (h)	Harrisburg	1921	260.	6′5″	5
Blue Bird C. Co.	Harrisburg	1929	strip	5′	5

(a) 1920 changed to Big Creek C. Corp., No. 2; 1924 changed to Saline Co. C. Corp., No. 42; 1929 changed to Peabody Coal Co., No. 42.
(b) 1920 changed to Big Creek C. Co., No. 3; 1924 changed to Saline Co. C. Corp., No. 43; 1929 changed to Peabody C. Co., No. 43.
(c) 1913 changed to Big Creek Coal Co., No. 1; 1924 changed to Saline Co. C. Corp., No. 46; 1929 changed to Peabody C. Co., No. 46.
(d) 1924 changed to Saline Co. C. Corp., No. 47; 1929 changed to Peabody C. Co., No. 47.
(e) 1930 changed to Franklin Co. C. Co., No. 10.
(f) 1912 changed to O'Gara C. Co., No. 12.
(g) 1912 changed to O'Gara Coal Co., No. 15.
(h) 1924 changed to Saline Co. C. Corp., No. 44; 1929 changed to Peabody C. Co., No. 44.

SANGAMON COUNTY.

Name of Operator in 1911.	Postoffice of mine.	Year opened.	Depth of shaft.	Thickness of vein.	Geological number of seam.
Auburn & Alton C. Co. (a)	Auburn	1878	270.	8′	6
Bissell C. Co. (b)	Springfield	1919	240.	5′6″	6
Black Diamond C. Co. (c)	Auburn	1904	302.	8′	6
Capitol C. Co. (d)	Springfield	1891	240.	5′10″	5
Citizens C. M. Co. "A" (e)	Springfield	1894	202.	6′	5
Citizens C. M. Co. "B" (f)	Springfield	1898	210.	6′	5
Cora Coal Co. (g)	Springfield	1905	200.	5′10″	5
Dickerson C. Co. (h)	Springfield	1882	230.	6′	5
Ill. Midland C. Co., No. 6 (i)	Sherman	1903	204.	6′	5
Jones & Adams C. Co. (j)	Springfield	1905	230.	6′	5
Lifton C. Co. (k)	Auburn	1893	270.	8′	6
O'Gara C. Co. (l)	Springfield	1901	250.	5′9″	5
Springfield C. M. Co., No. 2 (m)	Riverton	1893	233.	5′9″	5
Woodside C. Co. (n)	Springfield	1884	240.	5′6″	5
Springfield C. M. Co., No. 5 (o)	Springfield	1885	250.	5′9″	5
Springfield Co-op. C. Co. (p)	Springfield	1875	250.	5′8″	5
Tuxhorn C. Co. (q)	Springfield	1904	250.	5′10″	5
Williamsville C. Co. (r)	Springfield	1893	260.	5′8″	5
C. W. & V. C. Co., No. 1	Thayer	1900	300.	8′	6
Madison C. Corp., No. 6	Divernon	1900	335.	7′11″	6
Panther Creek, No. 1	Auburn	1918	270.	7′6″	6
Sangamon C. Co., No. 2	Springfield	1880	265.	6′	5
Spring Creek C. Co. (s)	Springfield	1905	177.	6′	5
West End C. Co. (t)	Springfield	1871	210.	6′	5

(a) 1920 changed to Union Fuel Co., No. 3.
(b) 1924 changed to Utilities Coal Corp.
(c) 1916 changed to Springfield Dist. C. Co., No. 54; 1925 changed to Peabody C. Co., No. 54.
(d) 1916 changed to Springfield Dist. C. Co., No. 57; 1925 changed to Peabody C. Co., No. 57.
(e) 1924 changed to Central Ill. C. Co.
(f) 1923 changed to Buckley C. Co.; 1928 changed to Mine B Coal Co.
(g) 1916 changed to Springfield Dist. Coal Co., No. 51; 1925 changed to Peabody Coal Co., No. 51.
(h) 1913 changed to Montour C. Co., No. 400; 1919 changed to Pittsburg C. Co., No. 400; 1921 changed to Ill. C. Corp., No. 1; 1928 changed to Lincoln C. Corp.
(i) 1913 changed to Peabody C. Co., No. 6.
(j) 1919 changed to Peerless C. Co.; 1929 changed to Peabody C. Co., No. 59.
(k) 1921 changed to Ill. C. Corp., No. 2.
(l) 1913 changed to Middle States C. Co., No. 26; 1918 changed to Sangamon Co. C. Co.; 1919 changed to Brewerton C. Co., No. 81.
(m) 1919 changed to Springfield Dist. C. Co., No. 52; 1925 changed to Peabody C. Co., No. 52.
(n) 1916 changed to Springfield Dist. C. Co., No. 53; 1925 changed to Peabody C. Co., No. 53.
(o) 1919 changed to Springfield Dist. C. Co., No. 55; 1925 changed to Peabody C. Co., No. 55.
(p) 1925 changed to New North C. Co.; 1929 changed to Panther Creek C. Co., No. 5.
(q) 1920 changed to Union Fuel Co., No. 2.
(r) 1920 changed to Union Fuel Co., No. 3.
(s) 1927 changed to Panther Creek C. Co., No. 5.
(t) Changed to Panther Creek C. Co., No. 4.

ST. CLAIR COUNTY.

Name of Operator in 1911.	Postoffice of mine.	Year opened.	Depth of shaft.	Thickness of vein.	Geological number of seam.
Cluly-Miller C. Co. (a)	O'Fallon	1884	180′	7′	6
Glendale C. Co. (b)	Belleville	1869	120′	6′6″	6
Jack Ruri C. Co. (c)	Freeburg	1917	130′	6′6″	6
Johnson C. Co. (d)	Marissa	1888	120′	7′	6
Meeks C. Co. (e)	Marissa	1904	170′	6′	6
New Marissa C. Co. (f)	Marissa	1920	110′	7′	6
Peoples C. Co. (g)	Lebanon	1903	200′	5′6″	6
Radium C. Co. (h)	Belleville	1915	50′	6′1″	6
Reeb Bros. C. Co. (i)	Belleville	1896	60′	6′6″	6
Superior C. Co. (j)	Belleville	1905	180′	6′	6
Taylor C. Co. Taylor (k)	O'Fallon	1890	212′	7′	6
Taylor C. Co. St. E. (l)	O'Fallon	1903	210′	7′	6
Wilharmel C. Co. (m)	Belleville	1881	138	6′	6
B. B. Coal Co.	Belleville	1918	180′	7′6″	6
Consolidated C. Co., No. 17	Collinsville	1905	226′	6′	6
Eldnar C. Co.	Belleville	1911	110′	6′3″	6
Ell-Rich M. Co.	Rentchler	1918	110′	6′5″	6
Fullerton C. Co.	Belleville	1891	140′	6′3″	6
Golden Rule C. Co.	Lenzburg	1911	50′	6′	6
Groom C. Co.	Belleville	1894	90′	7′	6
Gundlach C. Co.	E. St. Louis	1914	drift	6′3″	6
Guest C. Co.	Belleville	1917	185′	6′6″	6
Jones Bros. C. Co., No. 1	Marissa	1898	90′	7′	6
Kolb C. Co., No. 1	Mascoutah	1895	164′	7′	6
Kolb C. Co., No. 2	Mascoutah	1912	160′	7′	6
Kolb C. Co. V. H. (n)	Mascoutah	1901	90′	6′5″	6
Mulberry Hill C. Co.	Freeburg	1906	150′	7′	6
New National C. Co.	Belleville	1911	55′	6′	6
International C. Co. Carbon (o)	O'Fallon	1851	195′	7′	6
Quality C. Co.	Belleville	1917	180′	6′6″	6
St. Louis & O'Fallon C. Co., No. 1	E. St. Louis	1899	100′	6′3″	6
St. Louis & O'Fallon C. Co., No. 2	E. St. Louis	1904	210′	6′5″	6
Southern C. C. & M. Co., No. 6	Belleville	1897	180′	6′	6
Southern C. C. & M. Co., No. 8	Belleville	1902	200′	6′	6
Solar C. Co. (p)	Freeburg	1925	strip	7′	6
Summit C. M. Co.	Belleville	1890	140′	6′3″	6
Southern C. C. & M. Co., No. 7	Belleville	1904	150′	7′6″	6
Southern C. C. & M. Co., No. 1	Belleville	1888	180′	7′	6
Prairie Coal Co.	O'Fallon	1896	216′	6′3″	6
Lou-Nash C. Co., No. 1 (q)	Rentchler	1881	130′	6′6″	6

(a) 1916 changed to H. E. Miller Coal Co.
(b) 1926 changed to Reichert C. Co.; 1930 changed to Power Coal Co.
(c) 1921 changed to Free Bell C. Co.; 1925 changed to Lou-Nash C. Co., No. 2.
(d) 1914 changed to Victoria C. Co.; 1918 changed to Egyptian C. Co. OK.
* (e) 1913 changed to Egyptian C. Co. Meek.
(f) 1923 changed to Lyle C. Co.
(g) 1926 changed to Mowe & Chapple C. Co.; 1928 changed to Caseyville C. Co.
(h) 1921 changed to Aluminum Ore Co.; 1930 changed to Alcoa Ore Co.
(i) 1916 changed to Lattman-Reeb C. Co.; 1923 changed to Perry C. Co. S. B.; 1927 changed to Hippard C. Co.
(j) 1922 changed to Perry C. Co. Superior.
(k) 1916 changed to International C. Co.; 1920 changed to West Virginia C. Co.; 1922 changed to Perry C. Co. Taylor.

(l) 1916 changed to Fisher C. Co.; 1917 changed to St. Ellen C. Co.; 1922 changed to Perry C. Co. St. Ellen.
(m) 1913 changed to White C. Co.; 1922 changed to Kolb C. Co., No. 5; 1928 changed to Service C. Co.
(n) 1929 changed to Vinegar Hill C. Co.
(o) 1920 changed to West Virginia C. Co.; 1922 changed to Perry C. Co. Carbon.
(p) 1927 changed to United Electric C. Co., No. 13.
(q) 1930 changed to Piazzi & Marfia C. Co.

SHELBY COUNTY.

Name of Operator in 1911.	Postoffice of mine.	Year opened.	Depth of shaft.	Thickness of vein.	Geological number of seam.
Moweaqua C. Co.	Moweaqua	1890	620′	5′3″	5

TAZEWELL COUNTY.

Lake Erie M. Co.	E. Peoria	1902	100′	4′6″	5
Groveland C. Co., No. 2 (a)	Pekin	1918	165′	4′2″	5
Ubben C. Co.	Pekin	1903	100′	4′	5

(a) 1925 changed to Crescent C. Co., No. 2.

VERMILION COUNTY.

Bunsen C. Co. (a)	Georgetown	1916	200′	6′6″	6
Bunsen C. Co. (b)	Westville	1906	180′	7′2″	6
United Electric C. Co., No. 1	Danville	1910	strip	5′	7
McComb C. Co. (c)	Danville	1924	slope	6′6″	7
Dering C. Co., No. 4 (d)	Danville	1904	217′	5′8″	6
Taylor-English C. Co., No. 2	Catlin	1918	185′	5′4″	7
United Electric C. Co., No. 14	Danville	1927	drift	5′10″	7

(a) 1917 changed to U. S. Fuel Co. Bunsen.
(b) 1917 changed to U. S. Fuel Co. Vermilion.
(c) 1930 changed to Taylor-English C. Co., No. 3.
(d) 1917 changed to Peabody Coal Co., No. 24.

WASHINGTON COUNTY.

Nicholson C. M. Co. (a)	Nashville	1880	620′	5′6″	6
Centralia C. Co.	Centralia	1909	586′	6′6″	6

(a) 1917 changed to Nashville M. Co.; 1923 changed to Clarkson C. M. Co.

WHITE COUNTY.

Norris City C. Co. (a)	Norris City	1905	640′	5′	7

(a) 1916 changed to White Co. M. Co.; 1925 changed to Interstate Fuel & Power Co.; 1926 changed to Fire Band Fuel Co.; 1929 changed to Josh Anderson C. Co.: 1930 changed to Fireband Fuel Co.

WILL COUNTY.

Northern Ill. C. Co.	Wilmington	1927	strip	3′2″	2

WILLIAMSON COUNTY.

Name of operator in 1911.	Postoffice of mine.	Year opened.	Depth of shaft.	Thickness of vein.	Geological number of seam.
Big Muddy C. & I. Co., No. 7 (a)	Herrin	1901	140′	9′3″	6
Big Muddy C. & I. Co., No. 8 (b)	Clifford	1905	160′	9′	6
Big Muddy C. & I. Co. L. C. (c)	Johnston City	1908	240′	9′	6
Carterville B. M. C. Co., No. 2 (d)	Herrin	1918	slope	7′5″	6
Carterville-Herrin C. Co. (e)	Herrin	1902	100′	8′	6
Chicago-Carterville C. Co. A. (f)	Herrin	1897	120′	9′	6
Ernest C. Co., No. 1 (g)	Johnston City	1916	225′	8′	6
Johnston City B. M. C. Co., No. 1 (h)	Johnston City	1918	300′	8′	6
Johnston City B. M. C. Co., No. 2 (i)	Johnston City	1918	261′	8′7″	6
Keystone B. M. C. Co. (j)	Marion	1908	250′	7′	6
Marion-Pittsburg C. Co., No. 2 (k)	Pittsburg	1917	225′	6′7″	6
Pond Creek C. Co. (l)	Herrin	1909	240′	9′	6
W. P. Rend C. Co. (m)	Herrin	1908	115′	9′2″	6
Sanford C. Co. (n)	Pittsburg	1921	225′	6′	6
Standard Col. M. Co. (o)	Johnston City	1905	150′	9′	6
Watson C. Co., No. 2 (p)	Herrin	1903	50′	9′	6
Wilco M. Co. (q)	Herrin	1924	110′	4′	5
Big Muddy Fuel Co. (r)	Johnston City	1900	120′	7′5″	6
Cambria C. M. Co. (s)	Cambria	1926	slope	4′	5
Carbon Fuel Co.	Marion	1918	slope	6′	6
Federal C. Co. (t)	Carterville	1917	100′	9′5″	6
Madison C. Corp., No. 9	Dewmaine	1903	110′	8′	6
Madison C. Corp., No. 12	Carterville	1921	104′	7′5″	6
McLaren C. Co.	Carterville	1926	slope	9′	6
St. Louis C. & I. Co., No. 2	Johnston City	1920	100′	7′	6
Tregoning C. Co.	Carterville	1928	slope	8′6″	6
Coal Stripping Co.	Marion	1928	strip	6′6″	6
Orchard C. Co. (u)	Marion	1918	165′	6′	6
Henderson-Wallace C. Co.	Marion	1926	slope	6′5″	6
Wallace C. Co.	Marion	1930	slope	6′	6

(a) 1921 changed to Consolidated C. Co., No. 7.
(b) 1921 changed to Consolidated C. Co., No. 8.
(c) 1921 changed to Consolidated C. Co., L. C.
(d) 1925 changed to City Lake C. Co.
(e) 1916 changed to Pratt Bros. C. Co.; 1929 changed to Carterville-Herrin C. Co.
(f) 1918 changed to C. W. & F. C. Co. A.
(g) 1923 changed to Cosgrove-Meehan C. Co., No. 1.
(h) 1920 changed to Old Ben Coal Corp., No. 17.
(i) 1920 changed to Old Ben Coal Corp., No. 18.
(j) 1918 changed to Cameron C. Co.; 1925 changed to Wall C. Co.; 1928 changed to Cameron C. Co.: 1929 changed to Ill. Higrade C. Co.
(k) 1922 changed to Ernest C. Co., No. 2; 1923 changed to Cosgrove-Meehan C. Co., No. 2.
(l) 1919 changed to Freeman C. Co.
(m) 1921 changed to Old Ben Coal Corp., No. 20.
(n) 1923 changed to Cosgrove-Meehan C. Co., No. 3.
(o) 1916 changed to Searls C. Co.; 1923 changed to Crerar-Clinch C. Co.
(p) 1919 changed to Ridge C. Co.; 1922 changed to Sincerity C. Co.; 1928 changed to LaClede C. Co.; 1930 changed to Skaggs C. Co.
(q) 1926 changed to Puritan C. Co.
(r) 1921 changed to Big Muddy C. Co.; 1928 changed to Peabody C. Co., No. 26.
(s) 1929 changed to Ogmore C. Co.
(t) 1928 changed to Peabody C. Co., No. 25.
(u) 1929 changed to Ohio Valley C. Co.

WOODFORD COUNTY.

Name of operator in 1911.	Postoffice of mine.	Year opened.	Depth of shaft.	Thickness of vein.	Geological number of seam.
Roanoke C. Co. (a)	Roanoke	1884	480′	2′6″	2
Minonk C. Co. (b)	Minonk	1898	565′	2′6″	2

(a) 1925 changed to T. J. Barron C. Co.; 1929 changed to Roanoke Coal & Tile Co.
(b) 1925 changed to W. G. Sutton C. Co.

The record above referred to has been utilized in formulating the following lists. The subject is divided into three divisions and shows the name of the operator at the time the information was obtained in the first column, the name at the present time in the second column and the year mine was opened in the third place.

The three divisions are:

1. Mines opened prior to 1883.
2. Mines opened from 1883 to 1911.
3. Mines opened from 1912 to 1931.

MINES OPENED PRIOR TO 1883.

Name in 1911.	Present name.	County in which mine is located.	Year opened.
Gallatin C. & C. Co.	Ill. Saline C. Co.	Gallatin	1882
Cahill Coal Co.	Ill. Zinc Co., No. 3	La Salle	1879
La Salle Co. C. C. Co., No. 1	La Salle Co. C. C. Co., No. 1	La Salle	1865
La Salle Co. C. C. Co., L. S.	La Salle Co. C. C. Co., L. S.	La Salle	1856
La Salle Co. C. C. Co. Union	Union Coal Co.	La Salle	1871
Girard Coal Co.	Ill. Coal Corp., No. 4	Macoupin	1867
City Coal Co.	Henrietta C. Co. Hen.	Madison	1879
Auburn & Alton C. Co.	Union Fuel Co., No. 3	Sangamon	1878
Dickerson C. Co.	Lincoln C. Corp.	Sangamon	1882
Springfield Co-op. C. Co.	Panther Creek, No. 5	Sangamon	1875
Sangamon C. Co., No. 2	Sangamon C. Co., No. 2	Sangamon	1880
West End C. Co.	Panther Creek, No. 4	Sangamon	1871
Glendale C. Co.	Power C. Co.	St. Clair	1869
Wilharmel C. Co.	Service C. Co.	St. Clair	1881
International C. Co.	Perry C. Co. "Carbon"	St. Clair	1851
Nicholson C. Co.	Clarkson Coal Co.	Washington	1880

MINES OPENED FROM 1883 TO 1911.

Pocahontas M. Co.	Bond Co. Coal Co.	Bond	1906
Assumption C. Co.	Victory Coal Co.	Christian	1887
Pana Coal Co., No. 1	Pana Coal Co., No. 1	Christian	1884
Pana Coal Co., No. 2	Pana Coal Co., No. 2	Christian	1906
Penwell Coal Co.	Penwell Coal Co.	Christian	1889
Smith Lohr C. Co.	Springside C. Co.	Christian	1906
Springfield C. M. Co., No. 6	Peabody C. Co., No. 58	Chrsitian	1887
Stonington C. Co.	Peabody C. Co., No. 21	Christian	1906
C. W. Vanderver C. Co.	Young & Tex C. Co.	Christian	1888
Breese-Trenton M. Co.	Breese-Trenton M. Co. East	Clinton	1887
Breese-Trenton M. Co.	Breese-Trenton M. Co. Beck	Clinton	1905
North Breese C. M. Co.	Breese-Trenton M. Co. North	Clinton	1905
Southern C. C. & M. Co., No. 9	Southern C. C. & M. Co., No. 9	Clinton	1897
Benton Coal Co., No. 1	C. W. & F. C. Co., B, No. 1	Franklin	1905
Big Muddy-Carterville C. Co.	Franklin Co. C. Co., No. 7	Franklin	1905
Carroll & Franklin Co. C. Co.	Black Star C. Co.	Franklin	1909
Brazil Block C. Co., No. 11	Peabody C. Co., No. 18	Franklin	1905
Brazil Block C. Co., No. 18	Peabody C. Co., No. 19	Franklin	1907
Hart-Williams C. Co.	C. W. & F. C. Co., B2	Franklin	1907
Ohio Valley M. Co., No. 8	Old Ben C. Corp., No. 8	Franklin	1910
W. P. Rend Col. Co.	Old Ben C. Corp., No. 19	Franklin	1907
Sesser C. Co.	Old Ben C. Corp., No. 16	Franklin	1907
Southern Ill. C. & C. Co.	Franklin Co. C. Co., No. 5	Franklin	1908
United C. M. Co., No. 1	Old Ben C. Corp., No. 12	Franklin	1906
United C. M. Co., No. 2	Old Ben C. Corp., No. 14	Franklin	1911
West Frankfort C. Co.	Brewerton C. Co., No. 21	Franklin	1910
Zeigler C. Co., No. 1	Bell & Zoller M. Co., No. 1	Franklin	1904
Zeigler Dist. C. Co.	Old Ben C. Corp., No. 11	Franklin	1906
Canton C. Co.	Canton C. Co.	Fulton	1906
National C. M. Co.	Dorthel C. Co., No. 3	Fulton	1892
Alden Coal Co., No. 5	Illinois Colliery Co.	Fulton	1892
Muddy Valley C. Co.	Jackson C. Co.	Jackson	1888

MINES OPENED FROM 1883 TO 1911—Continued.

Name in 1911.	Present name.	County in which mine is located.	Year opened.
Peacock C. Co.	Chicago Fuel Co., Ward	Jackson	1910
Latham C. Co.	Brewerton C. Co., No. 92	Logan	1900
Decatur C. Co., No. 2	Macon Co. C. Co., No. 2	Macon	1884
Consolidated C. Co., No. 7	Consolidated C. Co., No. 7	Macoupin	1886
Consolidated C. Co., No. 14	Consolidated C. Co., No. 14	Macoupin	1903
Consolidated C. Co., No. 15	Consolidated C. Co., No. 15	Macoupin	1904
Madison C. Corp., No. 5	Madison C. Corp., No. 5	Macoupin	1887
Glen Ridge C. Co.	Ill. Coal Corp., No. 3	Macoupin	1893
Vivian Col. Co.	Union Fuel Co., No. 6	Macoupin	1896
Carlinville C. Co.	Standard Oil Co., No. 1	Macoupin	1885
Superior C. Co., No. 1	Superior C. Co., No. 1	Macoupin	1904
Superior C. Co., No. 2	Superior C. Co., No. 2	Macoupin	1904
Superior C. Co., No. 3	Superior C. Co., No. 3	Macoupin	1904
Donk Bros. C. Co.	Troy C. Co.	Madison	1900
Home Trade C. Co.	Henrietta C. Co. H. T.	Madison	1898
Bullock M. Co.	Bullock M. Co.	Madison	1898
East Side C. Co.	East Side C. Co.	Madison	1910
Lumaghi C. Co., No. 2	Lumaghi C. Co., No. 2	Madison	1901
Lumaghi C. Co., No. 3	Lumaghi C. Co., No. 3	Madison	1903
Madison C. Corp., No. 2	Madison C. Corp., No. 2	Madison	1891
Mt. Olive & Staunton C. Co., No. 2	Mt. Olive & Staunton C. Co., No. 2	Madison	1904
New Staunton C. Co.	New Staunton C. Co.	Madison	1904
Abbey Coal Corp.	Abbey Coal Corp.	Madison	1903
Chicago-Sandoval C. Co.	Franklin Co. C. Co., No. 9	Marion	1905
Marion Co. C. Co.	Marion Co. C. Co.	Marion	1908
Odin C. Co.	Odin C. Co.	Marion	1886
Burnwell C. Co., No. 1	Ind. & Ill. C. Corp., No. 12	Montgomery	1903
Kort-Kamp C. Co.	Ind. & Ill. C. Corp., No. 11	Montgomery	1903
Montgomery Co. C. Co.	Ind. & Ill. C. Corp., No. 15	Montgomery	1907
Shoal Creek C. Co.	Cosgrove-Meehan C. Co., No. 5	Montgomery	1905
Hillsboro C. Co.	Hillsboro C. Co.	Montgomery	1887
Peabody C. Co., No. 10	Ind. & Ill. C. Corp., No. 10	Montgomery	1906
Lovington C. Co.	Lovington C. Co.	Moultrie	1909
Crescent C. Co., No. 1	Crescent C. Co., No. 1	Peoria	1887
Applegate & Lewis C. Co.	Dorthel C. Co., No. 1	Peoria	1908
Mapleton C. Co.	East Mapleton C. Co.	Peoria	1907
Warsaw C. Co.	Central West C. Co.	Peoria	1906
Bald Eagle M. Co.	Egyptian Coal Co.	Perry	1904
Little Muddy Fuel Co.	Tamaroa Coal Co.	Perry	1901
Majestic C. Co.	Crerar-Clinch C. Co.	Perry	1905
Ritchey C. Co.	Brewerton C. Co., No. 45	Perry	1909
St. Louis-Coulterville C. Co.	Perry Coal Co. Perco	Perry	1901
Bailey Bros. C. Co.	Bailey Bros. C. Co.	Perry	1902
Security C. M. Co.	Security C. M. Co.	Perry	1910
Mo. & Ill. C. Co.	Willis C. & M. Co., No. 8	Perry	1903
Bresmer W. C. Co.	Madison C. Corp. (Crystal)	Randolph	1902
Ill. Fuel Co., No. 4	Sparta C. Co.	Randolph	1903
West Mine C. Co.	St. Louis C. Co.	Randolph	1900
Jones Bros. C. Co., No. 2	Jones Bros. C. Co., No. 2	Randolph	1904
Moffat C. Co.	Moffat C. Co.	Randolph	1903
Willis C. M. Co., No. 6	Willis C. M. Co., No. 6	Randolph	1888
Saline Co. C. Co., No. 2	Peabody C. Co., No. 42	Saline	1906
Saline Co. C. Co., No. 3	Peabody C. Co., No. 43	Saline	1911
Harrisburg-Southern C. Co.	Peabody C. Co., No. 46	Saline	1905
O'Gara C. Co., No. 1	O'Gara C. Co., No. 1	Saline	1905
O'Gara C. Co., No. 3	O'Gara C. Co., No. 3	Saline	1904
O'Gara C. Co., No. 8	O'Gara C. Co., No. 8	Saline	1904
O'Gara C. Co., No. 10	O'Gara C. Co., No. 10	Saline	1904
Harrisburg B. M. C. Co., No. 12	O'Gara C. Co., No. 12	Saline	1904
Harrisburg Col. Co., No. 15	O'Gara C. Co., No. 15	Saline	1909
Wasson Coal Co., No. 1	Wasson Coal Co., No. 1	Saline	1907
Black Diamond C. Co.	Peabody C. Co., No. 54	Sangamon	1904
Capital C. Co.	Peabody C. Co., No. 57	Sangamon	1891
Citizens C. M. Co. A	Central Ill. C. Co.	Sangamon	1894
Citizens C. M. Co. B	Mine B Coal Co.	Sangamon	1898
Cora Coal Co.	Peabody C. Co., No. 51	Sangamon	1905
Ill. Midland C. Co., No. 6	Peabody C. Co., No. 6	Sangamon	1903
Jones & Adams C. Co.	Peabody C. Co., No. 59	Sangamon	1905
Lefton C. Co.	Ill. C. Corp., No. 2	Sangamon	1893
O'Gara C. Co.	Brewerton C. Co., No. 81	Sangamon	1901
Tuxhorn Coal Co.	Union Fuel Co., No. 2	Sangamon	1904
Springfield C. M. Co., No. 2	Peabody C. Co., No. 52	Sangamon	1893
Woodside C. Co.	Peabody C. Co., No. 53	Sangamon	1884
Springfield C. M. Co., No. 5	Peabody C. Co., No. 55	Sangamon	1885
Williamsville C. Co.	Union Fuel Co., No. 5	Sangamon	1893
C. W. & V. C. Co., No. 1	C. W. & F. C. Co., No. 1	Sangamon	1900

MINES OPENED FROM 1885 TO 1911—Concluded.

Name in 1911.	Present name.	County in which mine is located.	Year opened.
Madison C. Corp., No. 6	Madison C. Corp., No. 6	Sangamon	1900
Spring Creek C. Co.	Panther Creek, No. 3	Sangamon	1905
Cluly-Miller C. Co.	H. E. Miller C. Co.	St. Clair	1884
Johnson C. Co.	Egyptian C. Co. OK	St. Clair	1888
Meek C. Co.	Egyptian C. Co. Meek	St. Clair	1904
People's C. Co.	Caseyville C. Co.	St. Clair	1903
Reeb Bros. C. Co.	Hippard Coal Co.	St. Clair	1896
Superior C. Co.	Perry C. Co. Sup.	St. Clair	1905
Taylor C. Co. Taylor	Perry C. Co. Taylor	St. Clair	1890
Taylor C. Co. St. Ellen	Perry C. Co. St. Ellen	St. Clair	1903
Prairie Coal Co.	Prairie Coal Co.	St. Clair	1896
Consolidated C. Co., No. 17	Consolidated C. Co., No. 17	St. Clair	1905
Eldnar C. Co.	Eldnar C. Co.	St. Clair	1911
Fullerton C. Co.	Fullerton C. Co.	St. Clair	1891
Golden Rule C. Co.	Golden Rule C. Co.	St. Clair	1911
Groom Coal Co.	Groom Coal Co.	St. Clair	1894
Jones Bros. C. Co., No. 1	Jones Bros C. Co., No. 1	St. Clair	1898
Kolb C. Co., No. 1	Kolb C. Co., No. 1	St. Clair	1895
Kolb C. Co., V. H.	Vinegar Hill C. Co.	St. Clair	1901
Mulberry Hill C. Co.	Mulberry Hill C. Co.	St. Clair	1906
New National C. Co.	New National C. Co.	St. Clair	1911
St. Louis & O'Fallon C. Co., No. 1	St. Louis & O'Fallon C. Co., No. 1	St. Clair	1899
St. Louis & O'Fallon C. Co., No. 2	St. Louis & O'Fallon C. Co., No. 2	St. Clair	1904
Southern C. C. & M. Co., No. 6	Southern C. C. & M. Co., No. 6	St. Clair	1897
Southern C. C. & M. Co., No. 8	Southern C. C. & M. Co., No. 8	St. Clair	1902
Summit C. M. Co.	Summit C. M. Co.	St. Clair	1890
Southern C. C. & M. Co., No. 7	Southern C. C. & M. Co., No. 7	St. Clair	1904
Southern C. C. & M. Co., No. 1	Southern C. C. & M. Co., No. 1	St. Clair	1890
Moweaqua C. M. Co.	Moweaqua C. M. Co.	Shelby	1890
Lake Erie M. Co.	Lake Erie M. Co.	Tazewell	1902
Ubben C. Co.	Ubben C. Co.	Tazewell	1903
Bunsen C. Co.	U. S. Fuel Co. Verm.	Vermilion	1906
United Electric C. Co., No. 1	United Electric C. Co., No. 1	Vermilion	1910
Dering C. Co., No. 4	Peabody C. Co., No. 24	Vermilion	1904
Centralia C. Co.	Centralia C. Co.	Washington	1909
Norris City C. Co.	Firebrand Fuel Co.	White	1905
Big Muddy C. & I. Co., No. 7	Consolidated C. Co., No. 7	Williamson	1901
Big Muddy C. & I. Co., No. 8	Consolidated C. Co., No. 8	Williamson	1905
Big Muddy C. & I. Co., L. C.	Consolidated C. Co., L. C.	Williamson	1908
Carterville-Herrin C. Co.	Carterville-Herrin C. Co.	Williamson	1902
Chicago-Carterville C. Co. A	C. W. & F. M. Co. A	Williamson	1897
Keystone B. M. C. Co.	Ill. Higrade C. Co.	Williamson	1908
Pond Creek C. Co.	Freeman C. Co.	Williamson	1909
W. P. Rend C. Co.	Old Ben C. Corp., No. 20	Williamson	1908
Standard Col. M. Co.	Crerar-Clinch C. Co.	Williamson	1905
Watson C. Co., No. 2	Skaggs C. Co.	Williamson	1903
Big Muddy Fuel Co.	Peabody C. Co., No. 26	Williamson	1900
Madison C. Corp., No. 9	Madison C. Corp., No. 9	Williamson	1903
Roanoke C. Co.	Roanoke Coal & Tile Co.	Woodford	1884
Minonk C. Co.	W. G. Sutton C. Co.	Woodford	1898

MINES OPENED FROM 1912 TO DECEMBER 31, 1930.

Former name.	Present name.	County.	Year opened.
	Cherry Coal Co.	Bureau	1929
Ill. Midland C. Co.	Peabody Coal Co., No. 7	Christian	1912
	Peabody Coal Co., No. 8	Christian	1913
	Peabody Coal Co., No. 9	Christian	1919
	Bell & Zoller M. Co., No. 2	Franklin	1918
Modern Coal Co.	Brewerton Coal Co., No. 22	Franklin	1918
	Old Ben C. Corp., No. 9	Franklin	1913
Christopher C. M. Co., No. 1	Old Ben C. Corp., No. 10	Franklin	1913
	Old Ben C. Corp., No. 15	Franklin	1913
	C. W. & F. C. Co., No. 1	Franklin	1913
	C. W. & F. C. Co., No. 2	Franklin	1923
	Franklin Co. M. Co.	Franklin	1918
Middle Fork C. Co.	United States Fuel Co.	Franklin	1916
	Valier Coal Co.	Franklin	1918
	Western C. & M. Co.	Franklin	1917
Alden Coal Co., No. 8	Dorthel C. Co., No. 2	Fulton	1915
	Putnam C. Co.	Fulton	1925
	Rawalt C. Co.	Fulton	1919
	Truax-Traer C. Co.	Fulton	1929
	United Electric C. Co.	Fulton	1924

MINES OPENED FROM 1912 TO DECEMBER 31, 1930—Concluded.

Former name.	Present name.	County.	Year opened.
Leland Coal Co.	Sunlight C. Co.	Grundy	1924
	Midland Elec. C. Co.	Henry	1929
	Shuler Coal Co.	Henry	1922
	De Soto-Peacock C. Co.	Jackson	1915
Murphysboro M. Co.	Spirit of Egypt C. Co.	Jackson	1925
Black Servant C. Co.	Truax-Traer C. Co., No. 1	Jackson	1924
Forsyth C. Co.	Truax-Traer C. Co., No. 2	Jackson	1925
	Union Col. Co.	Jackson	1918
	Ill. Coal Corp., No. 10	Jefferson	1923
	Galesburg M. Co.	Knox	1925
	Gillespie C. Co.	Macoupin	1920
	Perry Coal Co.	Macoupin	1923
Carlinville M. Co.	South Mine C. Co.	Macoupin	1919
	Standard Oil Co., No. 2	Macoupin	1918
	Superior C. Co., No. 4	Macoupin	1918
	Bunker Hill C. Co.	Madison	1921
Jay Coal Co.	Carlin C. Co.	Madison	1921
	Collinsville C. Corp.	Madison	1925
Donk Bros. C. Co., No. 4	Peabody Coal Co., No. 17	Madison	1920
Nokomis Coal Co.	Ill. Coal Corp., No. 9	Montgomery	1913
Newsam Bros C. Co., No. 5	Crescent Coal Co., No. 5	Peoria	1920
Newsam Bros. C. Co., No. 6	Crescent Coal Co., No. 6	Peoria	1922
Soper Coal Co., No. 2	Chicago Col. Co., No. 2	Perry	1918
	Gayle Coal Co.	Perry	1925
Scott-Smith C. Co.	Perfection C. Co.	Perry	1919
	Pyramid C. Co.	Perry	1926
Ill. Sixth Vein C. Co.	Southern Gem C. Co., No. 6	Perry	1919
Allen Coal Co.	Southern Gem C. Co., No. 7	Perry	1920
	Wilson C. M. Co.	Perry	1923
	United Electric C. Co., No. 11	Perry	1929
	Geo. Wilson C. Co.	Randolph	1925
	Willis C. & M. Co., No. 9	Randolph	1918
	Blue Bird Coal Co.	Saline	1929
	Dodds Coal Co.	Saline	1919
Dering Coal Co.	Franklin Co. C. Co., No. 10	Saline	1918
	Harrisburg C. Co., No. 8	Saline	1927
	Harrisburg C. Co., No. 9	Saline	1927
Big Creek C. Co., No. 4	Peabody C. Co., No. 44	Saline	1921
Harrisburg Col. Co.	Peabody C. Co., No. 47	Saline	1917
	Rhonda C. Co.	Saline	1923
	Saline Valley C. Co., No. 3	Saline	1918
	Wasson Coal Co., No. 2	Saline	1916
	Panther Creek Inc., No. 1	Sangamon	1918
Bissell C. Co.	Utilities C. Corp.	Sangamon	1919
Radium C. Co.	Alcoa Ore Co.	St. Clair	1915
	B. B. Coal Co.	St. Clair	1918
	Ell-Rich C. Co.	St. Clair	1918
	Guest Coal Co.	St. Clair	1917
	Gundlach C. Co.	St. Clair	1914
	Kolb Coal Co., No. 2	St. Clair	1912
New Marissa C. Co.	Lyle Coal Co.	St. Clair	1920
Jack Run C. Co.	Lou-Nash C. Co., No. 2	St. Clair	1917
	Quality C. Co.	St. Clair	1917
Solar Coal Co.	United Electric C. Co., No. 13	St. Clair	1925
Groveland C. Co.	Crescent Coal Co., No. 2	Tazewell	1918
	Taylor-English C. Co., No. 2	Vermilion	1918
McComb Coal Co.	Taylor-English C. Co., No. 3	Vermilion	1924
	United Electric C. Co., No. 14	Vermilion	1927
Bunsen Coal Co.	U. S. Fuel Co., Bunsen	Vermilion	1916
	Northern Ill. C. Co.	Will	1927
	Carbon Fuel Co.	Williamson	1918
Carterville B. M. C. Co.	City Lake C. Co.	Williamson	1918
Ernest Coal Co., No. 1	Cosgrove-Meehan C. Co., No. 1	Williamson	1916
Marion & Pittsburg C. Co.	Cosgrove-Meehan C. Co., No. 2	Williamson	1917
Sanford Coal Co.	Cosgrove-Meehan C. Co., No. 3	Williamson	1921
	Henderson-Wallace C. Co.	Williamson	1926
	McLaren C. Co.	Williamson	1926
	Madison C. Corp., No. 12	Williamson	1921
Orchard Coal Co.	Ohio Valley C. Co.	Williamson	1918
Cambria Coal Co.	Ogmore Coal Co.	Williamson	1926
Johnston City B. M. C. Co., No. 1	Old Ben C. Corp., No. 17	Williamson	1918
Johnston City B. M. C. Co., No. 2	Old Ben C. Corp., No. 18	Williamson	1918
Federal Coal Co.	Peabody Coal Co., No. 25	Williamson	1917
	Puritan Coal Co.	Williamson	1924
	St. Louis Coal & Iron Co., No. 2	Williamson	1920
	Scottsboro Coal Co.	Williamson	1928
	Tregoning C. Co.	Williamson	1928
	Wallace C. Co.	Williamson	1930

SUMMARY.

Number of mines opened prior to 1883	16
Number opened 1883-1911	158
Number opened 1912-1930	98
Total	272

SHIPPING MINES AT THE CLOSE OF 1930.

At the present time there are 272 shipping mines in the State, 185 of which produced coal in 1930 and 87 were not operated. These idle mines, no doubt, will become active when market conditions are favorable, and hence they are included in the foregoing and in the following list. The total output of these mines, as shown by the Annual Coal Reports since 1911, and by the estimates prior to that time, is given in the list below, together with the location, year opened, depth of shaft, thickness and number of seam.

TABLE 26—PRESENT NAME OF OPERATOR, LOCATION OF MINE, YEAR OPENED, DEPTH OF SHAFT, THICKNESS AND NUMBER OF SEAM AND TOTAL TONS MINED FROM THE YEAR THE MINE WAS OPENED TO DECEMBER 31, 1930, OF THE 272 MINES NOT PERMANENTLY ABANDONED.

Name of Operator.	Location of Mine.		Year opened.	Depth of shaft.	Thickness of of seam.	Number seam.	Total tons of coal produced.
	Postoffice.	County.					
Bond County Coal Co.	Pocahontas	Bond	1906	400′	7′6″	6	3,942,271
Cherry Coal Co.	Cherry	Bureau	1929	321′	4′6″	6	9,103
Pana Coal Co.	Pana	Christian	1884	728′	7′6″	6	7,147,266
Pana Coal Co., No. 2	Pana	Christian	1906	732′	7′6″	6	4,123,128
Peabody Coal Co., No. 7	Kincaid	Christian	1912	357′	8′	6	13,724,653
Peabody Coal Co., No. 8	Tovey	Christian	1913	373′	7′	6	12,587,237
Peabody Coal Co., No. 9	Taylorville	Christian	1919	410′	8′	6	7,190,958
Peabody Coal Co.,No.21	Stonington	Christian	1906	460′	7′6″	6	4,498,632
Peabody Coal Co.,No. 58	Taylorville	Christian	1887	495′	8′	6	13,069,914
Penwell Coal Co.	Pana	Christian	1889	730′	7′6″	6	7,713,633
Springside Coal Co.	Pana	Christian	1906	720′	7′6″	6	2,581,442
Victory Coal Co.	Assumption	Christian	1887	1,004′	7′	1	2,014,928
Young & Tex Coal Co.	Edinburg	Christian	1888	365′	7′	6	452,354
Breese-Trent'n M.Co. "Beck"	Beckemeyer	Clinton	1905	415′	8′	6	4,814,405
Breese-Trent'n M.Co. "East"	Breese	Clinton	1887	400′	7′6″	6	8,524,405
Breese-Tr'nt'n M.Co. "N'rth"	Breese	Clinton	1905	400′	7′	6	4,082,170
Southern C.C.& M.Co., No.9	New Baden	Clinton	1897	318′	8′	6	10,014,379
Bell & Zoller M. Co., No. 1	Zeigler	Franklin	1904	418′	12′	6	19,382,068
Bell & Zoller M. Co., No. 2	Zeigler	Franklin	1918	310′	12′	6	11,710,172
Black Star Coal Co.	Logan	Franklin	1909	693′	8′	6	4,274,567
Brewerton Coal Co., No. 21	W. Frankfort	Franklin	1910	450′	9′6″	6	6,588,804
Brewerton Coal Co., No. 22	Sesser	Franklin	1918	668′	9′	6	2,570,423
C.W.& F.C.Co. Benton No. 1	Benton	Franklin	1905	620′	10′	6	5,368,286
C.W.& F.C.Co. Benton No. 2	Benton	Franklin	1907	630′	10′	6	3,633,135
C.W.& F. Coal Co., No. 1	Orient	Franklin	1913	504′	9′6″	6	16,004,332
C.W.& F.Coal Co., No. 2	W. Frankfort	Franklin	1923	643′	9′6″	6	12,831,266
Franklin Co. C. Co., No. 5	Herrin	Franklin	1908	350′	9′	6	7,555,402
Franklin Co. C. Co., No. 7	Royalton	Franklin	1905	214′	9′6″	6	9,389,573
Franklin County Mining Co.	Benton	Franklin	1918	620′	8′	6	3,775,061
Old Ben Coal Corp., No. 8	W. Frankfort	Franklin	1910	465′	9′3″	6	14,909,779
Old Ben Coal Corp., No. 9	W. Frankfort	Franklin	1913	470′	9′6″	6	9.008,420
Old Ben Coal Corp., No. 10	Christopher	Franklin	1913	593′	10′	6	4,765,432
Old Ben Coal Corp., No. 11	Christopher	Franklin	1906	517′	9′6″	6	13,457,373
Old Ben Coal Corp., No. 12	Christopher	Franklin	1906	500′	9′6″	6	8,951,106
Old Ben Coal Corp., No. 14	Buckner	Franklin	1911	458′	9′6″	6	11,701,240
Old Ben Coal Corp., No. 15	Ezra	Franklin	1913	470′	9′6″	6	11,975,761
Old Ben Coal Corp., No. 16	Sesser	Franklin	1907	647′	8′8″	6	6,403,649
Old Ben Coal Corp., No. 19	Rend	Franklin	1907	567′	9′	6	4,175,234
Peabody Coal Co., No. 18	W. Frankfort	Franklin	1905	517′	9′6″	6	7,963,874
Peabody Coal Co., No. 19	W. Frankfort	Franklin	1907	510′	10′	6	7,766,177
United States Fuel Co.	Benton	Franklin	1916	600′	7′8″	6	4,067,931
Valier Coal Co.	Valier	Franklin	1918	610′	9′	6	9,078,158
Western Coal & M. Co.	Bush	Franklin	1917	152′	10′6″	6	7,147,697
Canton Coal Co.	Canton	Fulton	1906	58′	5′	5	6,257,443
Dorthel Coal Co., No. 2	Farmington	Fulton	1915	78′	4′	5	1,960,453
Dorthel Coal Co., No. 3	Farmington	Fulton	1908	100′	4′4″	5	2,075,701
Illinois Col. Co.	Farmington	Fulton	1892	170′	4′2″	5	1,287,687
Putnam Coal Co.	Breeds	Fulton	1925	drift	4′6″	5	52,157
Rawalt Coal Co.	Canton	Fulton	1919	drift	5′	5	657,961
Truax-Traer Coal Co.	St. David	Fulton	1929	strip	4′6″	5	475,876
United Electric C. Co., No. 9	Cuba	Fulton	1924	strip	4′7″	5	4,386,030
Illinois Saline Coal Co.	Equality	Gallatin	1882	90′	4′10″	5	1,634,104
Sunlight Coal Co.	Verona	Grundy	1924	96′	7′5″	2	2,249,741
Midland Electric C. Co.	Atkinson	Henry	1929	strip	2′	2	438.183

TABLE 26—Continued.

Name of Operator.	Location of Mine.		Year opened.	Depth of shaft.	Thickness of seam.	Number of seam.	Total tons of coal produced.
	Postoffice.	County.					
Shuler Coal Co.	Alpha	Henry	1922	270′	4′5″	1	446,849
Chicago Fuel Co. "Ward"	De Soto	Jackson	1910	50′	12′	6	547,208
De Soto-Peacock Coal Co.	De Soto	Jackson	1915	slope	6′	6	121,051
Jackson Coal Co.	Hallidayboro	Jackson	1888	165′	9′	7	7,260,822
Spirit of Egypt Coal Co.	Ava	Jackson	1925	80′	4′	2	19,258
Truax-Traer Coal Co., No. 1	Elkville	Jackson	1924	strip	5′8″	6	3,041,133
Truax-Traer Coal Co., No. 2	De Soto	Jackson	1925	strip	7′5″	6	1,745,927
Union Coal Co.	Dowell	Jackson	1918	265′	8′5″	6	6,606,280
Illinois Coal Corp., No. 10	Nason	Jefferson	1923	720′	8′5″	6	697,363
Galesburg Mining Co.	Galesburg	Knox	1925	110′	4′5″	1	743,308
Illinois Zinc Co., No. 3	Peru	La Salle	1879	260′	3′6″	3	3,264,652
LaSalle Co. Carbon C. Co., 1	La Salle	La Salle	1865	440′	3′4″	2	6,362,110
LaSalle Co.Carbon C.Co.L.S.	LaSalle	La Salle	1856	398′	3′4″	2	6,575,747
Union Coal Co.	Peru	La Salle	1871	402′	3′4″	2	4,699,575
Brewerton Coal Co., No. 92	Lincoln	Logan	1900	280′	5′2″	5	5,075,315
Macon Co. Coal Co.. No. 2	Decatur	Macon	1884	612′	4′6″	5	2,529,448
Consolidated Coal Co., No. 7	Staunton	Macoupin	1886	322′	6′	6	10,215,962
Consolidated Coal Co.,No.14	Staunton	Macoupin	1903	276′	7′	6	8,575,304
Consolidated Coal Co.,No.15	Mt. Olive	Macoupin	1904	364′	8′	6	13,283,362
Gillespie Coal Co.	Gillespie	Macoupin	1920	348′	7′	6	2,486,986
Illinois Coal Corp., No. 3	Virden	Macoupin	1893	320′	7′6″	6	8,024,563
Illinois Coal Corp., No. 4	Girard	Macoupin	1867	352′	7′	6	9,374,696
Madison Coal Corp., No. 5	Mt. Olive	Macoupin	1887	420′	8′	6	9,445,657
Perry Coal Co.	Gillespie	Macoupin	1923	386′	8′	6	90,338
South Mine Coal Co.	Carlinville	Macoupin	1919	250′	7′	6	230,576
Standard Oil Co., No. 1	Carlinville	Macoupin	1885	270′	6′	6	5,387,587
Standard Oil Co., No. 2	Carlinville	Macoupin	1918	319′	7′	6	2,125,433
Superior Coal Co., No. 1	Gillespie	Macoupin	1904	348′	8′	6	17,340,928
Superior Coal Co., No. 2	Gillespie	Macoupin	1904	324′	8′	6	19,182,769
Superior Coal Co., No. 3	Gillespie	Macoupin	1904	350′	8′	6	21,633,380
Superior Coal Co., No. 4	Gillespie	Macoupin	1918	312′	7′5″	6	10,326,537
Union Fuel Co., No. 6	Glen Ridge	Macoupin	1896	365′	6′6″	6	1,523,146
Bullock M. Co.	Collinsville	Madison	1898	170′	6′6″	6	739,219
Bunker Hill Coal Co.	Collinsville	Madison	1921	200′	6′	6	379,905
Carlin Coal Co.	Bethalto	Madison	1921	70′	4′6″	6	106,090
Collinsville Coal Corp.	Collinsville	Madison	1925	100′	7′	6	197,939
East Side Coal Co.	Edwardsville	Madison	1910	135′	6′	6	242,989
Henrietta C.Co.Home Trade	Edwardsville	Madison	1898	135′	5′	6	984,325
Henrietta Coal Co. "Hen."	Edwardsville	Madison	1879	222′	6′	6	765,731
Lumaghi Coal Co., No. 2	Collinsville	Madison	1901	193′	8′6″	6	10,247,408
Lumaghi Coal Co., No. 3	Collinsville	Madison	1903	165′	8′	6	2,316,720
Madison Coal Corp. No. 2	Glen Carbon	Madison	1891	110	6′6″	6	11,952,479
Mt.Olive & Staunton C.Co.,2	Staunton	Madison	1904	300′	7′	6	15.701,750
New Staunton Coal Co.	Livingston	Madison	1904	287′	6′	6	14,610,417
Peabody Coal Co., No. 17	Edwardsville	Madison	1920	207′	6′	6	3,446,246
Troy Coal Co.	Troy	Madison	1900	274′	5′	6	5,566,222
Franklin Co. C. Co., No. 9	Sandoval	Marion	1903	607′	6′	6	3,417,223
Marion County Coal Co.	Centralia	Marion	1908	600′	6′	6	8,196,557
Odin Coal Co.	Odin	Marion	1886	700′	7′	6	5,993,740
Cosgrove-Meehan C.Co., 5	Panama	Montgomery	1905	386′	7′	6	12,015,494
Hillsboro Coal Co.	Hillsboro	Montgomery	1887	456′	8′	6	9,195,206
Illinois Coal Corp., No. 9	Nokomis	Montgomery	1913	640′	8′2″	6	5,785,392
Ind. & Ill. Coal Corp., No. 10	Nokomis	Montgomery	1906	638′	8′6″	6	10,605,910
Ind. & Ill. Coal Corp., No. 11	Hillsboro	Montgomery	1903	470′	7′6″	6	5,971,687
Ind. & Ill. Coal Corp., No. 12	Witt	Montgomery	1903	534′	8′	6	3,839.557
Ind. & Ill. Coal Corp., No. 15	Hillsboro	Montgomery	1907	470′	8′4″	6	3,244,566
Lovington Coal Co.	Lovington	Moultrie	1909	920′	8′	6	2,032,137
Central West Coal Co.	Edwards	Peoria	1906	drift	4′6″	5	1,041,859
Crescent Coal Co., No. 1	Peoria	Peoria	1887	drift	4′6″	5	4,441,817
Crescent Coal Corp., No. 5	Peoria	Peoria	1920	slope	4′2″	5	806,838
Crescent Coal Co., No. 6	Peoria	Peoria	1922	slope	4′5″	5	1,866,232
Dorthel Coal Co., No. 1	Hanna City	Peoria	1908	250′	4′6″	5	2,275,818
East Mapleton Coal Co.	Mapleton	Peoria	1907	drift	4′6″	5	406,954
Bailey Bros. Coal Co.	Duquoin	Perry	1902	75′	5′	6	579,022
Brewerton Coal Co., No. 45	Pinckneyville	Perry	1909	160′	7′6″	6	2,532,388
Chicago Colliery Co., No. 2	Cutler	Perry	1918	110′	5′	6	438,132
Crerar Clinch Coal Co.	Duquoin	Perry	1905	403′	9′	6	10,500,486
Egyptian Coal Co.	Swanwick	Perry	1904	256′	7′	6	1,980,820
Gayle Coal Co.	Duquoin	Perry	1925	strip	6′	6	2,018,955
Perfection Coal Co.	Duquoin	Perry	1919	strip	6′	6	1,560,387
Perry Coal Co., "Perco"	Coulterville	Perry	1901	225′	7′	6	3,376,757
Pyramid Coal Co.	Pinckneyville	Perry	1926	strip	5′6″	6	2,625,406
Security Coal Co.	Duquoin	Perry	1910	91′	8′	6	6,507,250
Southern Gem C. Co., No. 6	Pinckneyville	Perry	1919	132′	7′	6	253,230
Southern Gem C. Co., No. 7	Cutler	Perry	1920	81′	6′	6	354,200

TABLE 26—Continued.

Name of Operator.	Location of Mine.		Year opened.	Depth of shaft.	Thickness of seam.	Number of seam.	Total tons of coal produced.
	Postoffice.	County.					
Tamaroa Coal Co.	Tamaroa	Perry	1901	214′	6′	6	848,757
Willis Coal M. Co., No. 8	Willisville	Perry	1903	78′	6′	6	1,571,445
Wilson C. M. Co.	Cutler	Perry	1923	120′	6′	6	529,972
United Electric C. Co., No.11	Duquoin	Perry	1929	strip	6′	6	853,298
Jones Bros. Coal Co., No. 2	Marissa	Randolph	1904	185′	6′6″	6	2,220,556
Madison C. Corp. "Crystal"	Tilden	Randolph	1902	200′	7′	6	3,124,254
Moffat Coal Co.	Sparta	Randolph	1903	125′	6′	6	5,719,244
St. Louis Coal Co.	Coulterville	Randolph	1900	198′	6′	6	3,727,848
Sparta Coal Co.	Sparta	Randolph	1903	75′	6′	6	3,422,004
Geo. Wilson Coal Co.	Sparta	Randolph	1925	128′	5′6″	6	15,620
Willis Coal M. Co., No. 6	Percy	Randolph	1888	86′	6′	6	5,329,205
Willis Coal M. Co., No. 9	Percy	Randolph	1918	42′	6′	6	218,317
Blue Bird Coal Co.	Harrisburg	Saline	1929	strip	5′	5	178,742
Dodds Coal Co.	Carrier Mills	Saline	1919	416′	5′	5	228,319
Franklin Co. C. Co., No. 10	Eldorado	Saline	1918	456′	6′	5	3,008,642
Harrisburg Coal Co., No. 8	Harrisburg	Saline	1927	strip	6′	5	272,469
Harrisburg Coal Co., No. 9	Harrisburg	Saline	1927	slope	6′	5	485,529
O'Gara Coal Co., No. 1	Harrisburg	Saline	1905	311′	5′3″	5	8,899,281
O'Gara Coal Co., No. 3	Harrisburg	Saline	1904	233′	6′3″	5	6,066,555
O'Gara Coal Co., No. 8	Harrisburg	Saline	1904	393′	4′8″	5	2,672,410
O'Gara Coal Co., No. 10	Harrisburg	Saline	1904	406′	4′8″	5	6,330,553
O'Gara Coal Co., No. 12	Harrisburg	Saline	1904	415′	5′	5	3,364,944
O'Gara Coal Co., No. 15	Harrisburg	Saline	1909	58′	5′	5	3,473.293
Peabody Coal Co., No. 42	Harrisburg	Saline	1906	100′	7′	5	6,354,789
Peabody Coal Co., No. 43	Harrisburg	Saline	1911	275′	7′	5	9,680,763
Peabody Coal Co., No. 44	Harrisburg	Saline	1921	260′	6′5″	5	766,991
Peabody Coal Co., No. 46	Eldorado	Saline	1905	337′	5′6″	5	2,432,352
Peabody Coal Co., No. 47	Harrisburg	Saline	1917	416′	5′6″	5	7,335,461
Rhonda Coal Co.	Harrisburg	Saline	1923	slope	5′	5	36,626
Saline Valley C. Co., No. 3	Harco	Saline	1918	slope	6′5″	5	93.063
Wasson Coal Co., No. 1	Harrisburg	Saline	1907	320′	5′6″	5	8,427,420
Wasson Coal Co., No. 2	Harrisburg	Saline	1916	slope	4′6″	5	2,097,010
Brewerton Coal Co., No. 81	Springfield	Sangamon	1901	250′	5′9″	5	3,713,573
Central Illinois Coal Co.	Springfield	Sangamon	1894	206′	6′	5	4,110,547
C. W. & F. Coal Co., No. 1	Thayer	Sangamon	1900	300′	8′	6	988,782
Illinois Col. Co., No. 2	Auburn	Sangamon	1893	270′	5′	6	409,759
Lincoln Coal Corp.	Springfield	Sangamon	1882	230′	6′	5	3,717,351
Madison Coal Corp., No. 6	Divernon	Sangamon	1900	335′	7′11″	6	10,943,791
Mine "B" Coal Co.	Springfield	Sangamon	1898	210′	6′	5	6,149,523
Panther Creek Mines, Inc., 1	Auburn	Sangamon	1918	270′	7′6″	6	6,790,538
Panther Creek Mines, Inc., 3	Springfield	Sangamon	1905	177′	6′	5	3,633,111
Panther Creek Mines, Inc., 4	Springfield	Sangamon	1871	210′	6′	5	7,211,423
Panther Creek Mines, Inc., 5	Springfield	Sangamon	1875	250′	5′8″	5	4,309,928
Peabody Coal Co., No. 6	Sherman	Sangamon	1903	204′	6′	5	9,233,788
Peabody Coal Co., No. 51	Springfield	Sangamon	1905	200′	5′10″	5	3,796,362
Peabody Coal Co., No. 52	Riverton	Sangamon	1893	233′	5′9″	5	10,145,681
Peabody Coal Co., No. 53	Springfield	Sangamon	1884	240′	5′6″	5	5,716,754
Peabody Coal Co., No. 54	Auburn	Sangamon	1904	302′	8′	6	6,385,903
Peabody Coal Co., No. 55	Springfield	Sangamon	1885	250′	5′9″	5	9,300,629
Peabody Coal Co., No. 57	Springfield	Sangamon	1891	240′	5′10″	6	7,879,912
Peabody Coal Co., No. 59	Springfield	Sangamon	1905	230′	6′	5	6,676,474
Sangamon Coal Co.	Springfield	Sangamon	1880	265′	6′	5	9,336,423
Union Fuel Co., No. 2	Springfield	Sangamon	1904	250′	5′10″	5	2,585,219
Union Fuel Co., No. 3	Auburn	Sangamon	1878	270′	8′	6	2,850,456
Union Fuel Co., No. 5	Springfield	Sangamon	1893	260′	5′8″	5	2,520,161
Utilities Coal Corp.	Springfield	Sangamon	1919	240′	5′6″	6	782,285
Alcoa Ore Co.	Belleville	St. Clair	1915	50′	6′1″	6	2,371,405
B. B. Coal Co.	Belleville	St. Clair	1918	180′	7′6″	6	653,374
Caseyville Coal Co.	Lebanon	St. Clair	1903	200′	5′6″	6	418,026
Consolidated Coal Co., No.17	Collinsville	St. Clair	1905	226′	6′	6	7,545,626
Egyptian Coal Co. "Meek"	Marissa	St. Clair	1904	170′	6′	6	1,297,473
Egyptian Coal Co. "OK"	Marissa	St. Clair	1888	120′	7′	6	1,704,089
Eldnar Coal Co.	Belleville	St. Clair	1911	110′	6′3″	6	2,827,605
Ell Rich Coal Co.	Rentchler	St. Clair	1918	110′	6′5″	6	923,761
Fullerton Coal Co.	Belleville	St. Clair	1891	140′	6′3″	6	1,985,962
Golden Rule Coal Co.	Lenzburg	St. Clair	1911	50′	6′	6	1,197,721
Groom Coal Co.	Belleville	St. Clair	1894	90′	7′	6	3,708,817
Guest Coal Co.	Belleville	St. Clair	1917	185′	6′6″	6	768,204
Gundlach Coal Co.	E. St. Louis	St. Clair	1914	drift	6′3″	6	644,140
Hippard Coal Co.	Belleville	St. Clair	1896	60′	6′6″	6	628,558
Jones Bros. Coal Co., No. 1	Marissa	St. Clair	1898	90′	7′	6	1.537,753
Kolb Coal Co., No. 1	Mascoutah	St. Clair	1895	164′	7′	6	3,351,105
Kolb Coal Co., No. 2	Mascoutah	St. Clair	1912	160′	7′6″	6	2,354,619
Lou Nash Coal Co., No. 2	Freeburg	St. Clair	1917	130′	6′6″	6	417,498
Lyle Coal Co.	Marissa	St. Clair	1920	110′	7′	6	664,430

TABLE 26—Concluded.

Name of Operator.	Location of Mine.		Year opened.	Depth of shaft.	Thickness of seam.	Number of seam.	Total tons of coal produced.
	Postoffice.	County.					
Miller H. E. Coal Co.	O'Fallon	St. Clair	1884	180′	7′	6	1,385,748
Mulberry Hill Coal Co.	Freeburg	St. Clair	1906	150′	7′	6	2,160,977
New National Coal Co.	Belleville	St. Clair	1911	55′	6′	6	1,997,154
Perry Coal Co. "Carbon"	O'Fallon	St. Clair	1851	195′	7′	6	5,099,212
Perry Coal Co., "St. Ellen"	O'Fallon	St. Clair	1903	210′	7′	6	4,874,997
Perry Coal Co. "Sup."	Belleville	St. Clair	1905	180′	6′	6	3,096,118
Perry Coal Co. "Taylor"	O'Fallon	St. Clair	1890	212′	7′	6	4,771,802
Piazza & Marfia Coal Co.	Rentchler	St. Clair	1881	130′	6 6″	6	1,255,017
Power Coal Co.	Freeburg	St. Clair	1869	120′	6′6″	6	2,383,445
Prairie Coal Co.	O'Fallon	St. Clair	1896	216′	6′3″	6	4,369,961
Quality Coal Co.	Belleville	St. Clair	1917	180′	6′6″	6	835,920
Service Coal Co.	Belleville	St. Clair	1881	138′	6′	6	2,125,413
Southern C.C.& M.Co.,No.1	Belleville	St. Clair	1888	180′	6′6″	6	2,421,124
Southern C.C.& M.Co.No.6	Belleville	St. Clair	1897	180′	6′	6	2,369,588
Southern C.C.& M.Co.,No.7	Belleville	St. Clair	1904	150′	7′6″	6	4,248,648
Southern C.C.& M.Co.,No.8	Belleville	St. Clair	1902	200′	6′	6	7,053,653
St.Louis & O'Fallon C.Co.,1	E. St. Louis	St. Clair	1899	100′	6′5″	6	5,979,056
St.Louis & O'Fallon C.Co.,2	E. St. Louis	St. Clair	1904	210′	6′5″	6	12,946,735
Summit Coal Co.	Belleville	St. Clair	1890	100′	6′5″	6	1,350,505
United Electric C.Co., No. 13	Freeburg	St. Clair	1925	strip	7′	6	1,382,468
Vinegar Hill Coal Co.	Mascoutah	St. Clair	1901	90′	6′5″	6	1,122,166
Moweaqua Coal Mining Co.	Moweaqua	Shelby	1890	620′	5′3″	5	2,357,953
Crescent Coal Co., No 2	Peoria	Tazewell	1918	165′	4′2″	5	3,001,452
Lake Erie Mining Co.	E. Peoria	Tazewell	1902	100′	4′6″	5	1,873,872
Ubben Coal Co.	Pekin	Tazewell	1903	100′	4′	5	759,035
Peabody Coal Co., No. 24	Danville	Vermilion	1904	217′	5′8″	6	6,311,901
Taylor English C. Co., No. 2	Caltin	Vermilion	1918	185′	5′4″	7	1,375,603
Taylor English C. Co., No. 3	Danville	Vermilion	1924	slope	6′6″	7	73,281
United Electric C. Co., No. 1	Danville	Vermilion	1910	strip	5′	7	4,084,224
United Electric C.Co.,No.14	Danville	Vermilion	1927	drift	5′10″	7	376,826
U. S. Fuel Co., "Bunsen"	Georgetown	Vermilion	1916	200′	6′6″	6	8,480,061
U. S. Fuel Co. "Ver"	Georgetown	Vermilion	1906	180′	7′2″	6	18,030,324
Centralia Coal Co.	Centralia	Washington	1909	586′	6′6″	6	8,429,965
Clarkson Coal M. Co.	Nashville	Washington	1880	420′	5′6″	6	959,319
Fireband Fuel Co.	Norris City	White	1905	640′	5′	7	1,457,137
Northern Ill. Coal Co.	Wilmington	Will	1927	strip	3′2″	2	1,793,314
Carbon Fuel Co.	Marion	Williamson	1918	slope	6′	6	589,479
Carterville-Herrin Coal Co.	Herrin	Williamson	1902	100′	8′	6	6,288,778
C. W. & F. Coal Co. "A"	Herrin	Williamson	1897	120′	9′	6	13,157,488
City Lake Coal Co.	Herrin	Williamson	1918	slope	7′5″	6	192,331
Coal Stripping Co.	Marion	Williamson	1928	strip	6′6″	6	531,353
Consolidated Coal Co.,No. 7	Herrin	Williamson	1901	140′	9′3″	6	10,399,631
Consolidated Coal Co.,No. 8	Clifford	Williamson	1905	160′	9′	6	8,154,630
Consolidated Coal Co. L.C.	Johnson City	Williamson	1903	240′	9′	6	5,681,219
Cosgrove-Meehan C.Co.,1	Johnston City	Williamson	1916	225′	8′	6	6,305,027
Cosgrove-Meehan C.Co.,2	Pittsburg	Williamson	1917	225′	6′7″	6	1,381,199
Cosgrove-Meehan C.Co.,3	Pittsburg	Williamson	1921	225′	6′	6	3,213,582
Crerar-Clinch Coal Co.	Johnston City	Williamson	1905	150′	9′	6	4,923,965
Fireman Coal Co.	Herrin	Williamson	1909	240′	9′	6	5,672,917
Henderson-Wallace Coal Co.	Marion	Williamson	1926	slope	6′5″	6	258,128
Illinois Higrade Coal Co.	Marion	Williamson	1908	250′	7′	6	1,352,822
Madison Coal Corp., No. 9	Dewmaine	Williamson	1903	110′	8′	6	10,720,386
Madison Coal Corp., No. 12	Carterville	Williamson	1921	104′	7′5″	6	5,483,202
McLaren Coal Co.	Carterville	Williamson	1926	slope	9′	6	111,962
Ogmore Coal Co.	Cambria	Williamson	1926	slope	4′	5	13,528
Ohio Valley Coal Co.	Marion	Williamson	1918	165′	6′	6	556,725
Old Ben Coal Corp., No. 17	Johnston City	Williamson	1918	300′	8′	6	2,866,139
Old Ben Coal Corp., No. 18	Johnston City	Williamson	1918	261′	8′7″	6	5,294,002
Old Ben Coal Corp., No. 20	Herrin	Williamson	1908	115′	9′2″	6	5,882,176
Peabody Coal Co., No. 25	Carterville	Williamson	1917	100′	9′5″	6	2,689,609
Peabody Coal Co., No. 26	Johnston City	Williamson	1900	120′	7′5″	6	5,922,571
Puritan Coal Co.	Herrin	Williamson	1924	110′	4′	5	61,354
Skaggs Coal Co.	Herrin	Williamson	1903	50′	9′	6	1,377,758
St.Louis Coal & Iron Co., 2	Johnston City	Williamson	1920	100′	7′	6	869,238
Tregoning Coal Co.	Carterville	Williamson	1928	slope	8′6″	6	10,000
Wallace Coal Co.	Marion	Williamson	1930	slope	6′	6	44,134
Roanoke Coal & Tile Co.	Roanoke	Woodford	1884	480′	2′6″	2	2,589,884
W. G. Sutton Coal Co.	Minonk	Woodford	1898	565′	2′6″	2	1,334,102

CHAPTER III.

LEGISLATION AFFECTING THE COAL INDUSTRY.

When the Constitution of 1848 was adopted, coal mines had not been developed sufficiently to arouse in the public mind the necessity for legislation looking to the health and safety of those engaged in the industry, and, therefore, no authority being given in that Constitution, the Legislature was powerless to enact such laws.

However, when the Constitutional Convention met in 1870, the industry had been developed to a degree where legislation was demanded. The Convention, realizing the need of safeguarding the lives and health of the men employed in the mines, embodied in the new Constitution this provision:

ARTICLE 4, SECTION 29.

> "It shall be the duty of the General Assembly to pass such laws as may be necessary for the protection of operator miners, by providing for ventilation, when the same may be required, and the construction of escapement shafts or such other appliances as may secure safety in all coal mines, and to provide for the enforcement of said laws by such penalties and punishments as may be deemed proper."

Pursuant to this provision of the Constitution, the Legislature in 1871 passed an Act providing for inspection of mines by County inspectors and all reports to be made to County Boards.

This law was unsatisfactory, and agitation for its amendment soon began. In 1872, Walton Rutledge, (See Appendix a) was Chairman of a Committee of Miners which prepared a bill making the County Surveyor ex officio inspector of mines, which became a law, but proved unsatisfactory, and the next session it was amended, giving the County Board the right to appoint inspectors in their respective Counties. Other laws relating to the management, construction and improvement of mines were enacted between 1871 and 1883, but did not prove adequate to the requirements of the industry. The greatest dissatisfaction seems to have been in regard to the inspection service, and there was much sentiment created in mining circles in favor of State supervision. Consequently, when the General Assembly met in 1883, a bill was introduced amending the law of 1879 and prior years and practically revising all the laws regarding the mining industry. This bill was finally enacted into law and became effective July 1, 1883.

The main provisions of these laws are summarized and shown by sections.

Sec. 1—Provides for survey and map of mine to be made.

Sec. 2—Inspectors empowered to have maps made.

Sec. 3—Escapement shaft or other place of egress must be made.

Sec. 4—Amount of ventilation required. When furnaces may be used.

Sec. 5—Bore-holes required.

Sec. 6—Requiring signals between top and bottom, cage covers, safety catches, and forbidding women and children working in mines.

Sec. 7—Defines character of engineer, and use of cages.

Sec. 8—Provides for examination of boilers, the fencing of shafts of abandoned mines, and places of refuge.

Sec. 9—Reporting accidents to the mine inspector, and defining the duties of inspectors.

Sec. 10—Penalties prescribed.

Sec. 11—Division of State into five inspection districts. Appointment of district inspectors. Qualifications of inspectors. Salaries of inspectors. County inspectors.

Sec. 12—Duties of inspectors, removal of inspectors. Bond of examiners.

Sec. 13—Authority of inspectors.

Sec. 14—Remedies for injuries received.

Sec. 15—Penalties for misdemeanors of miners.

Sec. 16—Timber for props.

Sec. 17—Repealing inconsistent Acts.

Sec. 18—When buildings to be rendered fire-proof.

Sec. 19—Miners must use copper needles and copper tips on tamping bars.

AN ACT TO PROVIDE FOR THE WEIGHING OF COAL AT THE MINE *(In force July 1, 1883).*

Sec. 1—Scales to be provided at the mines.

Sec. 2—All coal must be weighed at the mine.

Sec. 3—Check weigher may be employed, must be an employe, and have a written permit.

Sec. 4—Penalty.

The Thirty-fourth General Assembly, 1885, amended Section three of the law by providing for equipment of escapement shafts, right-of-way for underground connections. Section four was amended, increasing the amount of ventilation required and provided for the removal of men from dangerous workings.

The Act to provide for the weighing of coal at the mines was amended, requiring a record to be kept of all coal mined, adding to the penalties for violations and enacting a new section (5), which provides for the nullification of all contracts for mining coal in which the weighing of coal was dispensed with.

In 1887, the Legislature amended the law by adding a paragraph to Section four which required all mines to be examined every morning by an agent of the proprietor. Section six was amended, requiring a topman and bottomman to attend to signals. A code of signals, was also adopted. An amendment to Section eight provided for a traveling way at the bottom of the shaft.

The General Assembly, in 1891, enacted a law which provided for the examination of applicants for mine manager by the Board of

Examiners and prohibited the employment of anyone as mine manager, in any mine equipped for shipping coal, or any mine whose output may be twenty-five tons or more per day, after January 1, 1892, unless such person has first obtained a certificate of competency or a certificate of service from said Board of Examiners.

In 1895, the law was amended dividing the State into seven districts with an inspector for each district and providing for the examination by the State Board of Examiners of applicants for fire bosses and hoisting engineers, and prohibiting, after July 1, 1896, the employment of anyone as such without first obtaining a certificate of competency or service from said Examining Board. Certificates of competency were good at any mine in the State. Certificates of service were valid only at the mines where the persons employed had been in continuous service for one year, or more. On April 19, 1906, the Examining Board, by resolution, provided for the issuing of mine managers' certificates of the first and second class, the first class certificates to apply to all mines in the State and the second class to apply to mines employing less than ten men.

A bill was passed in 1897, approved June 3, in force July 1, 1897, which required the payment in lawful money of the United States for all coal mined and loaded into the mine car. This law did away with the "truck-store" and gave the miner pay for the gross weight of his product.

In 1899 a general revision of the mining law was enacted. Much that was ambiguous and inconsistent, resulting from numerous amendments of the old law, was eliminated and many changes and some new features were added. These changes included the elimination of the State Board of Examiners and in lieu thereof provided for a Board to be appointed by the Commissioners of Labor and known as the State Mining Board. The name "Fire Boss" was changed to "Mine Examiner" and provision made whereby certificates of service might be exchanged for certificates of competency. This provision applied to hoisting engineers as well as to fire bosses.

The law required all mines, regardless of their capacity, to be in charge of certified mine managers, mine examiners and hoisting engineers; it gave the Board of Labor Commissioners the power to change inspection districts and provided for the necessary traveling expenses of the inspectors and their compensation to be paid by the State, instead of the fee system, which require the owners of mines to pay a fee, varying from $6.00 to $10.00, according to the size of the mine and the number of men employed for the inspection; authorized the appointment by the Board of Supervisors, or County Commissioners, of County inspectors of mines in all Counties of the State in which coal is produced. In the former Act, County inspectors were authorized only in Counties producing 800,000 tons or more annually. The law, as amended, became effective July 1, 1899.

The Legislature, in 1905, passed what is known as the Shot Firers' Law. This law required shot firers to be employed and paid by the Coal Companies in certain specified mines.

Provision was made at this session for the division of the State into ten districts with an inspector for each district.

An amendment was passed in 1907 giving the Governor the power to appoint the State Mining Board. Prior to this time this power was vested in the Commissioners of Labor.

A special session of the Legislature in 1908 passed a bill which received the Governor's signature and became effective July 1, 1908, creating, in all Counties of the State where coal mining is carried on, a Board to be styled the Miners' Examining Board. This Board was to be appointed by the Circuit Judge of the judicial district in which such County was located and was authorized to hold meetings in their respective Counties and pass upon the qualifications of all applicants as to their competency to mine coal. The law prohibited the employment of all applicants as to their competency to mine coal. The law prohibited the employment of anyone as a miner who did not have a certificate of competency issued by the Board.

In 1909 a bill was passed, approved June 8, which required the trustees of the University of Illinois to establish, in the College of Engineering, at the University, a department of mining engineering for the purpose of training young men for efficient work in all phases of the mining industry. This session also passed an Act creating the Mining Investigation Commission and amended the Miners' Qualification Act by providing for the appointment of the Board by the County Judge of each County.

The Legislature, called in special session early in 1910 by Governor Deneen, in response to public sentiment for relief and remedial legislation in consequence of the Cherry mine fire, which occurred in November of the previous year, passed a bill, which became law, providing for fire-fighting equipment in coal mines and mine fire-fighting and rescue stations in coal fields. This Act was approved March 4, 1910, and went into effect July 1 of that year.

The regular session of the General Assembly, which convened in January, 1911, made a general revision of the mining law, amended several sections of the Mine Fire Rescue Stations law and passed an Act regulating the character of black blasting powder. Prior to this time the duty of collecting, compiling and tabulating the reports of operators, known as the Annual Coal Report, was under the supervision of the Bureau of Labor Statistics. This work was transferred to the State Mining Board and an amendment passed providing for twelve inspection districts with an inspector for each district.

In 1913 the law of 1908 creating the Miners' Examining Board was amended, providing for a Commission consisting of three members, to be appointed by the Governor, their salaries to be paid by the State; the Board to hold at least twelve examinations in as many places in the coal fields each calendar month. No person was allowed to work at the face without first obtaining a certificate of competency so to do by satisfactorily passing the test prescribed by the Board. The next session enacted an amendment allowing, until July 1, 1916, an exchange of certificates issued by any County Board for one issued by the State Board.

The 1913 session also enacted a law requiring wash-rooms to be maintained at all coal mines in the State and a law regulating the character of permissible explosives.

The Fiftieth General Assembly, in 1917, passed what is known as the Civil Administrative Code, consolidating the executive activities of the State under nine departments. All matters relating to the mining of coal and other minerals were placed under the Department of Mines and Minerals, the executive officers of which are: Director and Assistant Director, a Mining Board, consisting of four members and the Director of the Department, and a Miners' Examining Board of four members. The law became effective on July 1, 1917, and on that day Evan D. John assumed the duties of Director and Martin Bolt, Assistant Director. The Department was then organized into four divisions:

General Office.

Inspection.

Miners' Examination.

Mine Rescue and First Aid.

The law gave the Department power to inquire into the economic conditions affecting the mining, quarrying,etc., of metallurgical, clay, oil and other mineral industries, and in compliance with this provision, a new division was created, known as the Division of Economic Investigation.

In 1919 an additional mine inspector was provided for in the appropriation made to the Department, and designated as Inspector-at-Large.

The Fifty-second General Assembly, in 1921, passed an Act, which became effective January 1, 1922, governing the operation of metal mines and provided for an inspector of these mines. This office was placed under the jurisdiction of the Department of Mines and Minerals and the Division of Fluorspar Inspection was created. An Act to regulate the use of electricity in the mines was also passed at this session and became effective July 1, 1921.

Two additional Rescue Stations, one at Belleville and one at Johnston City, were provided for by Act of the Legislature in 1927 and were equipped and in operation within a few months.

CHAPTER IV.

MINE DISASTERS.

HISTORY OF, LIST OF, SUMMARY.

In this chapter a brief account of the disasters which have occurred in the mines of the State, so far as we have the records, is given.

Some of these, because of the awful toll of human life and the unusual cause of the calamity, are given more fully than the others. Only those "accidents" where more than two were killed at one time are classed as "disasters."

THE DIAMOND MINE DISASTER AT BRAIDWOOD.

(Copied from the Coal Report of 1883.)
(See Appendix B.)

The most conspicuous event which has occurred during the year or which has ever marked or marred the annals of coal mining in this State to this time, was the calamity which befell the Diamond Mine, and the miners in it, at Braidwood, in February last. At this place, by the sudden precipitation of a sea of surface water into the workings of the mine, in the middle of the day, 69 men were engulfed and miserably perished; 39 women were made widows; 93 children were made fatherless, and the mine itself and its owners were involved in common ruin.

The history of coal mining in all times and countries presents a deplorable record of sudden death and disaster to coal miners. Laws have been framed, and warnings uttered, and one precautionary measure after another has been taken to reduce to a minimum casualties in mines, but the inherent peril of the business continues to produce its average of victims. Individual cases of violent death are still familiar events in all mining communities, and at intervals, happily not frequent, some great calamity is chronicled, involving horrible death to a mine full of people. Heretofore, however, these cases have occurred in distant States or countries, where mines have been deeper or gases more prevalent, or dangerous conditions more generally recognized than in our Western mines. But the Diamond Mine was in the midst of one of our most populous communities, the workings were near the surface, free from explosive gas, and with several places of egress in case of fire or accident in the main shaft, yet, notwithstanding these conditions, it became suddenly, though not without warnings, which should have been heeded, the scene of a catastrophe, which has had no parallel in the West, either in its character or fatal consequences.

Although the principal features of this event have become widely known through the press, we take occasion to present here a simple record of the case, gathered from those most familiar with the circumstances. In this we have been especially assisted by Mr. Cumming, mine inspector of the Third district, who has been for many years a resident of that part of the State.

The topography of the county in which the Diamond Mine was located, is known to be in general very level and low. The seam of coal is thin, and near the surface, and one of the chief sources of expense in mining it is the handling of the great quantities of water which continually accumulate in the workings. Its proximity to Chicago, alone, gives to this coal field its special value, and it is doubtful if the necessary capital would be found to develop it were it not the nearest coal to the largest market in the West. There is said to be ten square miles of this level and marshy tract upon which the Diamond and other mines are located, and it is all so flat that no natural drainage is locally possible, and ordinarily all accumulations of water lie upon the surface until absorbed or evaporated. Even when thrown out of the mines with pumps it has no alternative but to find its way through the soil back again. Another feature of the situation is that all the coal in this field is worked on the long-wall system, and as fast as the mineral is removed the surface comes down with the roof, and consequently makes a loose, irregular break all along the face of the workings, particularly susceptible to the action of water, and leaves in general an uneven and treacherous surface for water to stand upon.

For several days prior to the 16th of February, 1883, there had been a general thaw in the vicinity of Braidwood, accompanied by warm rains, which reduced the winter's snow to water and swelled it to a flood, which overspread the entire surrounding country. That this was an unusual condition of things, is not claimed. Water in similar quantities had accumulated and stood upon the surface there before. On several occasions in former years, surface water had found its way into the mine, and two years previously it had broken through in such quantities as to create general alarm. In this case it is stated only that the volume of water was not greater than usual. Its depth is given as from one to three feet, but whether it was more or less, would seem hardly to affect the gravity of the situation. It was spread like a sea over the entire face of the country, and constituted an open menace to every mine in the vicinity. That it was regarded as an element of danger, is shown by the action of the superintendent of an adjacent mine, who prohibited the men from going into his works, and ordered out those who had gone down before his arrival. Yet the men of the Diamond Mine went below that morning, as usual, and with only 54 feet of sand and surface drift between them and an untold weight of water, began their day's work,—which they never finished.

At about 11 o'clock in the morning the "cager" at the bottom of the main shaft discovered an unusual amount of water flowing to the bottom, and sent word to that effect to the men at the different working places, by the drivers who came to the shaft with their loaded cars. Being still uneasy about it, he came to the top to ascertain if possible the cause of it. Making no discoveries, he descended the shaft again, and reaching the bottom found the volume of water already so great that he had difficulty in rescuing a boy, who had charge of a door near the shaft, with whom he at once ascended again to the top. By this time those who had taken the alarm were clamboring out by the escapement shaft, and the mine was now filling so rapidly that those who failed to receive the alarm, or were at too great a distance from the shaft, were speedily and hopelessly shut off from all escape whatever. The point at which the break-through took place, is on the eastern boundary of the workings, while the principal working place was at the western extremity—the main or hoisting shaft being midway between them. In this, as in other mines, the main shaft was located in the dip, or lowest point of the coal, so that all water which accumulated in the mine could flow to the shaft, and then be raised with pumps to the surface. The depth of the old air-shaft, near the break, was 68 feet, that of the main shaft was 84 feet, and that of the escapement 75 feet. The first rush of water was consequently to the bottom of the main shaft, that being the lowest point, and all escape at that point would be shut off some time before the outer galleries of the mine would be filled. It is probable, therefore, that no water would reach the working places on the west boundary until it was really too late to make any escape except by the escapement shaft. The bottom of this shaft being nine feet higher than that of the main shaft, it would afford an opportunity for egress after it was no longer possible to reach the bottom of the main shaft. To this point those who did escape made their way, and at this point the last desperate struggle of those who barely escaped was made, and, groping for this outlet in despair, having almost reached it, twenty-two men awaited and accepted their doom.

Unhappily there was a fatal defect in the construction of the roadway leading to this escapement shaft, which proved full of fatal consequences. At a short distance from the bottom of this shaft there was a dip or declivity in the roadway, followed by a corresponding rise, and creating a hollow about fifteen yards in length. Of course this hollow would be filled with water to the roof, while the road on either side of it was still out of water, and thus the advantage of the higher ground at either end would be neutralized and lost. It will be seen by statements made hereafter by those who escaped last by this route, that they had to dive or plunge through this fifteen yards of water in order to reach the bottom of the escapement shaft. Had such an emergency as this been foreseen or anticipated, it would have been a simple matter to have taken down the top and filled up this road to a uniform level, thus affording safe egress, possibly, to the entire working force, before being finally overtaken by the water. Another complication arises in all such cases as this, from the doors set across the roadways for the purpose of directing and controlling the currents of air. One of these doors being closed, with the weight of a body of water against it equal to its own dimensions, would constitute a barrier as impassable as a wall of rock—and so, doubtless, many desperate men found it. Those who did escape, had their most dreadful struggle with the doors leading to the escapement gallery, and the location at which the bodies of twenty-two others were found indicates that they may have had a similar struggle in vain.

It will thus be seen that when this sea of surface water began its headlong rush into the cavities of the Diamond mine, it first closed the exit by the main shaft, then by the escapement shaft, and then hermetically sealed the doors, and took possession of the more remote recesses of the mine at its own deadly leisure.

As soon as the nature and extent of the catastrophe could be realized on the surface, active measures were proposed and taken for the rescue of those who were yet within the mine. These were, however, as brief as they were futile. It was as difficult to get into the mine as it was to get out. Mr. Skinner, the pit boss, descended the main shaft, but found only water, and the black damp so heavy as to put out his light. Two men, however, Harmon Unger and Blazius Shatzel by name, succeeded in making an entry by the escapement shaft, but they never returned. Their bodies were found afterwards among the twenty-two victims near the bottom of the shaft; and their widows, and children and friends can only lament their fruitless heroism. This closed the chapter, and completed the death roll.

Some hope was at first entertained that there might be higher points in the mine to which the victims might retire and by some means maintain themselves alive until the water could be removed; but it was a forlorn hope, born of despair, and failed to sustain the most sanguine after a moment's reflection. The probability was greater that those who escaped drowning, if any there were, would perish with deadly gases, forced by the water from every crevice of the mine, within an hour after the mine was filled.

Having thus briefly sketched in outline the circumstances attending this tragic event, we introduce here the written statements of some of those who participated in the scenes, both inside and outside the mine, during those few fateful moments in which the destinies of so many men were being sealed.

First is the statement of James Glasgow, the weighman, or top boss of the flooded mine:

"I was on the top attending to my usual duties on the 16th of February last. We had had a change in the weather some days previous, with considerable rain and a higher temperature. The day was very misty, and the prairie was covered with water as far as could be seen. Everything had gone right until half-past eleven A. M., when the cager came up to the top, reporting unusual water at the bottom, and went across to the escapement shaft to ascertain if any water was getting in there. Finding none, he said he thought it must have broken through in some other place. He descended the shaft again, but found the water waist deep and rising rapidly. He called to the trapper boy, who had charge of the door for regulating the current of air. The boy was on the other side of the door, and was unable to pull the door open. The cager then made his way to the door, and after the most strenuous effort succeeded in getting the door open sufficiently to allow the boy to get out, and assisted him to get to the shaft, when they both came safe to the top.

"Meantime, I had sent one of the top men to look around the dirt dump, and see if he could discover the break. He reported that on reaching the end of the dirt dump he discovered water boiling three feet above the surface near the old air shaft. We hastened to see, and discovered the water rushing into the break like a whirlpool, and could hear the noise for a quarter of a mile. I was alarmed, and neither of the bosses being on the ground, telephoned to Mr. Mackay, the superintendent, and told the engineer to sound the alarm whistle. Mr. Mackay arrived within five minutes, and went around to examine the nature and extent of the break. Meantime, Mr. Skinner, the pit-boss, had made an effort to get down the hoisting shaft, but could not reach the bottom with a light, the water having reached the roof, and the black damp being too strong for a lamp to burn. On coming to the top he found Herman Unger and Blazius Shatzel there, both of whom immediately went over to the escapement shaft, and down the ladders, with a view of rendering assistance to their fellow-workmen. They never came back. By this time a crowd was gathered around the shaft, but the water had arisen so rapidly there was no possibility of rescuing the men inside."

The following is the statement of Peter Johnson, one of the survivors, a young Swede:

"I was at work in the old Diamond shaft, in the extreme south west entry. The driver came running in and gave the alarm that the water had broken in. There were ten men at work there in five places. All of us quit work and hurried out towards the shaft, and met the water first at the west switch, and before reaching the door leading to the escapement shaft we had to wade through three feet of water. Four of us came out together to that point, and found twelve or fifteen men there ahead of us. It took the united strength of as many as could get at the door to force it open against the pressure of the water. I was the last to go through, and the weight of the water pressed the door together, and caught my foot and jammed it very badly before I could get it away. After a struggle, I got loose, and followed the others. I found them at the point where the bottom dipped and made a hollow between us and the escapement shaft. In this hollow the water was up to the roof, and the distance through it was, I should think, twelve or fifteen yards. Most of the men thought it impossible to get through, but a man named Smith urged on us all to try. He said he would die if he stayed there, and he would rather die trying to get through. He went into the water and called to me to come on. He seized me by the arm, and holding on to each other we struggled on until we finally came through at the other end completely exhausted. After resting long enough to recover our breath we climbed the stairs and were safe."

The next statement is made by a young Scotchman, lately arrived in this country, by the name of William Dennison.

He says: "I was working at the face when the alarm was given by one of the drivers, and as I had been afraid of the water, I ran out at once, with the others, without stopping for our clothes. I was not much acquainted with the roads, so had to follow the others, trusting to their knowledge of the way. We had not gone far before we met the water. It seemed to swell before us. I heard some one shouting to others that they had gone the wrong way, and hurrying after them as if to bring them back, but I never saw any of them afterwards. When we got to the door leading to the escapement it took seven of us to get it open. The water was surging against it in great waves, and rising with every wave. When we had forced our way through the door, we found about fifteen men in there ahead of us, and up to their chins in water, and the dip ahead of them filled to the roof. Some crying, some praying, and all hopeless of getting any farther. Then Smith called out that it was death to stay there, and he would rather die trying to get through. Six of us plunged after him into the watery tunnel. I got down on my hands and knees and began to grope my way through in the dark, hurrying, and trying to hold my breath. Just as I thought I must be nearly through, I found my way obstructed by a fall of rock, against which I struck my head with such force as to be almost stunned, but I rallied again and made my way over it, and then encountered two men struggling wildly in the passage. Fortunately, I escaped their dying clutches, for another moment s delay would have been fatal to me. A few more struggles brought me suddenly to the end, and I emerged from the water close to the bottom of the shaft. The water ran from my nose and mouth for some time, but I soon recovered strength to go up the ladder, where I found my father and brother, both of whom had been at work in the mine, but had escaped before I did. They had about given me up. I was the last to come through the water, and Smith was the last to climb the shaft."

Succeeding the fruitless impulse to save, came the resolution to at least recover the bodies of the dead. Nothing more remained which could be done, and even that proved a most arduous undertaking.

First the exact spot where the crevasse had taken place had to be located and inspected. With the aid of a boat the vortex was reached, and found to be about 50 x 90 feet in area. Nothing could, of course, be done towards removing the water from the mine until the construction of a coffer-dam around this place so as to shut off the further flow of water into the workings. To accomplish this required the building of a dam 5.000 feet in length, in water three feet in depth—an undertaking in itself requiring much time, skill and labor. Fortunately there was an abundance of assistanct at hand.

All the mines in the vicinity at once suspended operations, and both the miners and superintendents directed all their energies and resources to the work of recovery. In the course of a few days the dam was completed, and the company's pumps, augmented by as many others as could be advantageously placed, were at once set in motion for the purpose of hoisting a body of water, the volume of which could only be conjectured.

The equipment in the way of pumps and hoisting apparatus was as follows:

1 No. 9 Knowles pump, with capacity of 520 gals. per minute,
1 No. 8 Knowles pump, with capacity of 400 gals. per minute,
2 No. 7 Crane's pump, with capacity of 600 gals. per minute,
3 No. 6 Crane's pump, with capacity of 510 gals. per minute,
2 Water-tanks constructed in the cages, 550 gals. per minute.

Making a total of 7 pumps and two tanks, with an aggregate capacity of 2500 gallons per minute, or an effective capacity, allowing one-third off for delays, of 1,726 gallons per minute, or 2,500,000 gallons per day.

These powerful pumps were driven to the limit of their capacity night and day until the 26th day of March—thirty-eight days after the flooding of the mine.

On the 25th the first descent was made to the mine below, and on the 26th the first bodies were recovered. The mine itself was found to be a total wreck. The water had carried with it, to all parts of the works, vast quantities of mud from the surface, and had loosened and displaced supporting timbers, and had so softened the roof that it fell in large masses as soon as the water was taken out.

This not only blockaded the roadways, but also so obstructed the air-courses that it was impossible to re-establish the circulation sufficiently to displace the accumulated black damp. The entrance into the workings was consequently attended with great difficulty and danger—not only from the accumulations of gas and debris, but from the loosened and impending rocks which were falling and liable to fall at any moment.

Volunteer exploring parties were, however, speedily organized, and led by men of nerve and experience, descended into the pit while it was still necessary to wade through the receding waters.

The individual experience of some of those who were engaged in this search for the dead is given herewith, as procured in writing by Mr. Cumming.

Mr. E. D. Phillips says: "Shortly after the water was down so that a search could be made, I became one of a party of explorers who undertook to go into the mine. We found the bottom of the shaft and the roadways in a terrible condition. The water had washed gravel, sand and rubbish into and across the shaft bottom to a depth of about four feet. Found the water running also about four feet deep in the roadway on the east side. I made my way to the door which had stopped the men from reaching the bottom of the main shaft, owing to the weight of water which had rested against it. Immediately behind this door lay the bodies of four men; two more lay near the stable, which was situated in the southwest corner of the bottom pillar, and before reaching the return air-way, several others were discovered lying more or less under the fallen rock. We found the bodies of the three Pearson brothers on the top of some framing of timbers. They were arm-in-arm, the youngest, a lad of about 15 years, in the middle. He had a large stone lying on his head. There were twenty-two bodies in all recovered at this time, all in the space between the door and the roadway leading to the escapement shaft. They were all in such a state of decomposition that it was impossible to identify them except by their clothing. We advanced and tried to reach the escapement shaft, but found it at that time impossible, as the water in the low place there was still nearly up to the roof. In the other direction we advanced about 250 yards, until our progress was stopped by the fallen rock. I only estimated the distance, as I had no way at this time of measuring it. We found no more bodies, however, and came out."

The following is the account of Mr. William Smith, a most discreet and courageous explorer:

He says: "Accompanied by Mr. Ramsey, superintendent of the Braceville Coal Co., Mr. Swansbourg, pit-boss of No. 2 Braceville, and some others, Aaron Green and myself went up to the Diamond when it was ready to be searched for bodies. We all went down the shaft, and there found the bodies which had been discovered by the first exploring party, and while they were being taken to the surface, we went on in search of other victims of the flood. We found the roadways very badly caved in, and in a very dangerous condition. We had great difficulty in making our way over the falls, and this was materially increased by the bad condition of the air, which was so heavy we could hardly keep a light. To guard against danger from the gas, I kept some distance ahead of the party with a safety lamp, they following with the naked lights. It required the efforts of the whole party in some places to make a passage-way at all, but after a great struggle, we succeeded in reaching the main switch or parting, a distance of perhaps 200 yards from the shaft, and found we could proceed no further, on account of a heavy fall. All that day was spent trying to force our way by digging and crawling under and over the piles of rock, past this obstruction. The night shifts came on and relieved us, and in the morning we again relieved them at this work, and continued the effort to get over the fall until 4 o'clock in the afternoon of the second day, when we finally reached the roadway on the other side. Some distance further on we came upon the bodies of two mules, but made no other discoveries. On the next day I made a further search in this entry, and reached the working face, though in some places wading in water waist deep, but no other bodies were found than those of the mules. This was in the entry running north of west. The day following we went into the entry running south, until we were stopped by falls, which completely blocked up the entry; and as the black damp was too strong for a light to burn, we were compelled to abandon the effort in that direction. On Friday morning we got through into the main west entry, and after a very arduous effort, we stopped to rest and smoke a bit; but while the others were resting, I went on a short distance, and there discovered six bodies, all on top of the timbers. I went on a little further to make sure there was no danger, and then called up my mates, and we then counted the bodies. Afterwards I pushed on, and by the dint of hard creeping and tight squeezing, reached the working-face, but discovered nothing more. We then went out and reported to Mr. Mackay, and decided to make some small sleds, on which to remove the bodies. While these were being made, men were vigorously at work on the roadways cutting a passage sufficient to admit of the sleds and coffins. This was not accomplished until Sunday morning at 10 o'clock, and Sunday afternoon the bodies finally reached the surface."

Mr. Smith and his party were engaged in prosecuting this search seven days, and they were paid by the Braceville Coal Company, which company being identified with the Chicago, Milwaukee and St. Paul Railroad, also tendered free transportation to any point on their lines, to such surviving relatives as might wish to go to their friends, and many improved the opportunity to seek new homes.

The following statement is made by William Gallacher, an intelligent man who had long been employed as an under boss in the mine, and is now mining boss at Illiana. He knew every part of the "Diamond" and is reliable.

"I was away from home when the accident occurred but returned shortly after, and was there when the search for the bodies took place. We got down the shaft for the first time on the 25th of March, and found two or three feet of sand and debris all across the bottom. We had first to brattice off the north and west side of the shaft in order to conduct the air into the workings before we could commence the search. On going through the door on the southwest road we found five bodies, and from there on to the road leading to the escapement we discovered seventeen more. They were all in an advanced stage of decomposition, and were very difficult to identify. The first bodies were removed to the top on the 26th. The search was continued all along the west road, which was very badly obstructed. John Ormond, mine boss of the Eureka Coal Company, and David Skinner, mine boss of the flooded mine, made a very thorough search of the north entry, but no other bodies were found until Friday, the 29th, when six more were discovered by William Smith, of Braceville, in the southwest entry. These were finally recovered on the following Sunday. I believe the company prosecuted the search vigorously as long as there was any hope, and that if the location of other bodies could have been known, it would have been impossible to have reached them or removed them."

After the recovery of the last six bodies, and a thorough search of all the accessible recesses of the mine, it became evident that the bodies of the remaining victims must have been buried in the ruins, and could not be reached, except at great risk of life, and further effort at recovery was abandoned. The company offered to continue the pumping and to afford all necessary facilities, if men could be found to go on with the explorations below, but the improbability of any further satisfactory results deterred the men from taking any more risks.

Consequently by general consent, though not without the protest of those deeply afflicted, the long sustained effort was at last suspended. The dead were identified and buried. The fires were drawn from the furnaces, the pumps ceased, the shaft gradually filled again with water, and the late populous mine became simply the silent sepulcher of the unrecovered dead. And such it will ever remain. The property is abandoned, and will be only known in the future as the scene of the great tragedy.

Such is a simple outline of this notable and deplorable event. It requires no effort of the imagination to fill in the details of the picture with horrors within the pit, with the homes made desolate, the wretched women made widows, the helpless children thrown hungry upon the world, and all the wreck of human happiness entailed by this waste of human life, but such details have no place here.

The simplest narrative of the facts is sufficient to emphasize these plain lessons: that men should not be sent into, nor permitted under any circumstances to enter a mine known to be unsafe; that an unobstructed and available roadway to an escapement shaft is as essential as the shaft itself; that every mine, and especially one like this, exposed at frequent intervals to the gravest perils, should have an effective system of signals to convey an instant alarm to all parts of the works. If there are any compensations for such a calamity as this, they can only be found in the greater vigilance and caution exercised by those who still have the lives of others in their keeping.

It is due to the proprietors of this property to note the activity and energy with which, after the event, they entered upon the work of rescue and recovery. No effort and no expense was spared to mitigate the consequences of the disaster, and it is stated upon good authority that not less than $20,000 was expended by the company in the recovery of the victims, and that their whole loss was $40,000. The superintendents and officers of the adjacent mines, and of the Chicago and Alton Railroad, also contributed promptly from their resources such men and material as could be used while the miners themselves were quick to render any possible service, to the neglect, for many days, of their regular vocation. And not only the miners of Braidwood but those of other towns, and of distant States, began at once with characteristic generosity and alacrity to make up contributions for the survivors.

Indeed, this case seemed to appeal in a peculiar manner to the active sympathy of the people at large, and contributions of money began to flow in from all quarters for the relief of the women and children who had been left destitute. The thirty-third General Assembly of the State, being then in session, also took official cognizance of this sudden distress brought upon so many of its people, and made an appropriation of $10,000, to be expended in their behalf. A committee of responsible persons was appointed at Braidwood to receive and disburse all these funds, and from their last report the following statement is summarized:

CONTRIBUTIONS RECEIVED.

From Chicago	$ 7,905.59
" Braidwood	4,546.70
" Braceville	2,551.20
" Wilmington	600.83
" Joliet	2,063.88
" Lockport	92.45
" Lemont	301.45
" Bloomington	545.67
" Streator	2,065.00
" Miscellaneous	6,797.11
The State appropriation	10,000.00
Total for Illinois	$ 37,469.88
" " Iowa	1,448.25
" " Missouri	227.59
" " New York	2,197.70
" " Indiana	125.00
" " Kansas	160.02
" " Wisconsin	203.20
" " Ohio	28.00
" " Pennsylvania	98.30
" " Michigan	81.00
" " New Mexico	102.00
" " Maryland	88.00
Total	$ 42,228.85

From this generous fund distribution has been made among the resident survivors of the deceased, on the basis of $1.50 a week to each member of a family number six or more; $1.60 a week to each member of a family of five; $1.70 a week to each member of a family of four; $1.85 to each of a family of three; $2.50 to each of a family of two, and $4.00 a week to widows and aged women.

In making final settlements with families desiring to remove from the place, the following scale was adopted: To each widow, $300; to widow and one child, $500; to widow and two children, $600; to widow and three children, $700; to widow and four children, $800; to widow and five children, $900; and to widow and six children, $1000.

In this manner over $17,000 have been disbursed, and plans are being devised for the purchase of simple homes for the 20 families still remaining in the village, and for their maintenance until they can become self-supporting.

This bountiful provision made for the relief of the physical wants of these unfortunate people, has done much to alleviate their sufferings, and, as an expression of the universality of human sympathy, constitutes the only redeeming feature of the situation.

The following is a list of the men and boys killed in the Diamond mine, with the nationality and age of each:

Name.	Nationality.	Age.	Name.	Nationality.	Age.
A. McQuinston, Sr.	Scotch Irish	46	John Cullock	Poland	48
A. McQuinston, Jr.	Scotch Irish	19	John Huber	German	43
R. McQuinston	Scotch Irish	23	Christopher Huber	German	16
Wm. McQuinston	Scotch Irish	14	Lewis Huber	German	15
Isaac Pearson	English	23	James Pearson	English	19
John Niel	Scotch	34	John Pearson	English	13
Blazius Shatsel	German	34	John French	Scotch	20
P. C. Redmond	Irish	42	John Hohnson	Swede	44
Mathew Redmond	Irish	13	John Anderson	Scotch	28
Hugh Nesbit	Scotch	18	John Smith	Scotch	23
Robert Harper	Scotch	30	Samuel Atkins	Welsh	31
Alexander Orr	Scotch	31	John Atkins	Welsh	24
John Boyd	Scotch	33	Frank Matts	German	53
Henry Eadie	Scotch	23	A. Babington	Scotch	28
James Carroll	Irish	33	P. H. Wall	Irish	25
William Sholtz	German	44	D. McBride	Irish	20
August Rambart	German	32	Thomas Costigan	Irish	23
Jacob Lenz	German	30	Herman Unger	German	31
Carl Chiller	German	30	D. Groter	German	38
John Brokman	German	50	A. Stewart, Jr.	Scotch	21
John Polenas	German	28	Robert Stewart	Scotch	14
August Hacka	German	30	A. Kalenberg	German	30
Simon Stumps	German	33	William Sekora	German	30
Fritz Kae	German	32	L. Sullivan	Irish	25
Geo. Butskouskey	Poland	32	Alexander Fulton	Scotch	33
Frank Butkouskey	Poland	21	William McCulley	Scotch	28
Joe Gootes	Poland	24	Joseph Mattern, Sr.	German	54
Martin Neyski	Poland	23	Joseph Smith	German	26
Martin Ochenick	Poland	32	Joseph Mattern, Jr.	German	26
John Denbroskey	Poland	41	William Klesser	German	26
Anton Denbroskey	Poland	17	Henry Klesser	German	22
Frank Murray	Poland	24	Thomas Rodgers	Scotch Irish	32
August Damm	German	43	Hugh Ramsey	Scotch Irish	23
E. Damm	German	35	Henry Eadie	Scotch	25
Frank Kloss	Poland	50			

The year 1883 was marred by another disaster in which 10 men lost their lives. This was the result of an explosion, presumably of gas, in the Coulterville Coal Company's mine, Coulterville, Randolph County. The history of this explosion has not been preserved, and merely the mention of the fact is all that can be given here.

For the next 19 years the State was exempt from any calamity resulting in the death of more than two men at one time. The average number of fatalities for these 19 years was 61, the number ranging from 39 to 99. During the fiscal year 1903, however, five disasters occurred in which 29 men lost their lives. These disasters are as follows:

October 13, 1902, an explosion caused by a "windy shot" occurred in Victor Coal Company's mine, Pawnee, Sangamon County, in which three lives were lost. Two shots had been fired at the same time, about 4 o'clock p. m., which evidently produced the explosion, as the shots striking each other at right angles caused the gas to ignite from the flames. Five stoppings between the entries were blown out, permitting the expansion of the blast at the face of the entries, which was a very fortunate thing, as most of the miners had congregated at the bottom of the hoisting shaft, waiting to be taken out. This blowing out of the stoppings, giving vent to the flames and force of the explosion, no doubt saved the lives of the men congregated at the shaft bottom.

An explosion in the Auburn and Alton Coal Company's mine at Auburn, Sangamon County, occurred February 25, 1903, at 15 minutes to 7:00 o'clock p. m., and resulted in the killing of two shot firers and one driver. The explosion took place in the second working room, on the second south entry. This room was very dry and dusty; two large blasts had been fired in this room; one on the right hand side in the lower part of the coal seam, and the other in the top coal, that had been left up and back from the working face. Both of these shots had been largely over-charged with powder, and must have been fired almost simultaneously, as the blown coal was nearly all reduced to slack or fine coal.

The carbonic oxide gases given off by these shots took fire from the flame of the shots, the force of the blast raising the fine dry coal dust in the room, and with the dust from the shots, which also ignited, greatly intensified the explosion.

The flame from these blasts passed through a crosscut into the room adjoining, where other shots had been previously fired; the gases from these shots also took fire, which, with the force of the explosions and flames, passed out into the entry. Near the mouth of the room in which the explosion took place, and on the entry, a box containing powder was blown to pieces; the powder exploding greatly increased the force of the blast. Two mine cars standing on the entry were blown to pieces. The fan was blowing a direct current of air down the air shaft; about 16,000 cubic feet per minute was passing in the first and second entries; the force of the blast went against the current of air and forced the doors off of the top of the air shaft; fortunately, however, the fan was located back from the air shaft and was not damaged. The flames following the explosion passed out on the return entry for a distance of 600 feet; the bodies of the two shot firers and the driver were found at this point. The force of the explosion had evidently hurled these men a great distance along the entry, as their bodies were terribly mangled and burned.

EXPLOSIONS OF GAS AT THE MINE OF THE CARDIFF COAL CO., CARDIFF, LIVINGSTON COUNTY.

The first explosion in the Cardiff mine, which occurred March 13, 1903, whereby three persons lost their lives, was caused by gas igniting at a gob fire in the old workings down the south slope, which had been abandoned over a year. The shaft is 240 feet deep to a 12 foot seam of coal; six feet lower there is a 3 foot seam. When the upper seam was worked out at this point, the south slope was commenced in the lower seam, and the rooms were driven at right angles to the rooms in the upper seam at the location of the gob fire in the lower seam. The strata between the two seams caved through, thus forming a chimney or draft for the fire.

There were 15 men in the mine when the explosion occurred, all at work building and repairing stoppings in the upper seam, intending thereby to smother the gob fire burning in the lower seam. The men were instantly killed by being thrown against the entry rib by the force of the explosion.

The second explosion occurred Sunday evening, March 15, about 5:20 o'clock. Six men were in the mine at the time, building and repairing stoppings.

W. H. Parker, superintendent, and Thomas Roberts, mine manager, with several others, volunteers, made preparations to go down the shaft; when about half-way down, the cage caught in the slides, owing to some broken timbers, caused by the force of the explosion. Considerable time was lost before the party reached the bottom of the shaft. The rescuing party followed down the back entry to the south slope, where the men had been working. They found the bodies of two men; further search was made for the other three men, but they could not be found. The party was forced to abandon the search at this time on account of the bad condition of the air.

9:30 o'clock, Monday, the 16th, the third explosion took place. This was decidedly the most violent explosion that had occurred. The force of the explosion blew down the pulley wheels, and knocked down part of the tower at the air shaft and also forced through the end of the engine house. A. M. Michaels, head carpenter, was struck on the breast with a piece of flying timber, injuring him seriously; he died about noon the same day.

At 2:37 p. m., the same day, Monday, March 16, the fourth explosion occurred, the force of which blew the covering off of both shafts. The ditch, having been completed at this time, the water was let into the air shaft.

The fifth, and last, explosion occurred about 7:30 p. m. the same day; about half an hour afterwards, smoke was discovered coming out of the hoisting shaft. The shaft timbers had been set on fire and all combustible material around the top works was burning.

The engine house was completely destroyed by fire, although it was covered with corrugated iron. The heat coming out of the shaft was intense, warping the steel tower and rendering it a total wreck.

About 11:30 p. m., the shaft timbers having been consumed by the fire, the shaft caved in, letting in the surface around the top for a radius of about 20 feet, leaving the tower hanging at an angle of about 45 degrees. The shaft and all property was a total loss and the mine has been abandoned.

Nine men lost their lives in these explosions.

March 23. 1903, a blast explosion in the mine of the Athens Coal Company, Athens, Menard County, killed six men.

A blast explosion occurred in the mine of the Sandoval Coal Co., at Sandoval, Marion County, March 31, 1903, killing eight men. The explosion originated in the 5th west entry. The hole had been drilled, charged and fired by the night shift. When the shot was fired, the tamping was blown out without bringing down any coal. It was estimated that nearly 12 pounds of powder was used in this shot and it was charged in the solid coal. When the shot was fired, it blew out the tamping and caused the explosion. The force of this shot did not make a crack in the coal. When it is considered that the potential energy of one pound of powder is equal to 480 foot tons, it can readily be understood the force and destruction that would follow the exploding of 10 or 12 pounds of powder when fired out of a hole facing a roadway. All the men killed and injured by this shot were on the entry, in direct line of the force from the shot, which accounts for the large number killed. Most of the men killed were on their way to the bottom of the shaft. Three of the men killed were sitting at the entrance of the entry where the explosion occurred; the stoppings on each side of the trap door were blown on to them, killing one instantly,—one lived two hours,—the other eight days. Five were brought out dead. Three drivers were seriously injured by this explosion, losing three months' time.

On May 11, 1904, occurred a terrific explosion of powder in the mine of the Big Muddy Coal and Iron Company, Herrin, Williamson County, which resulted in the death of ten men and the serious injury of twelve others. The cause of this explosion is not fully known, but it would seem that proper precaution had not been taken in sending powder into the mine, and the driver of the car containing six kegs ran into a live wire which was down and the powder became ignited.

The fatalities from mine disasters during the fiscal year 1905 surpassed by far that of any previous year, with the exception of 1883. This year three distinct calamities occurred, resulting in a loss of 60 lives. On December 9, 1904, four men were killed as a result of a blown-out shot in the mine of the Eldorado Coal Company, Eldorado, Saline County. Owing to the fact that the Inspector of this district, William Adkinson, lost his life the following April in the explosion at Zeigler, a detailed report of this accident was not made to this office—hence only a mention of the fact can be recorded here.

January 16, 1905, shortly after noon, a fire broke out in No. 1 mine of the Decatur Coal Company, Decatur, Macon County, which resulted in the death of six men. The fire was discovered in the mule stable and undoubtedly was caused by sparks from a pipe or a partially consumed cigarette. At the time the fire was discovered, about 60 men were in the mine, but by the prompt action of the mine manager in sending runners to give warning, all escaped but the six unfortunates referred to above. The alarm was immediately sent to the city fire department, which responded promptly, but, owing to the location of the fire so far underground, considerable time was consumed in preparing to reach it. By hard work, the fire was brought under control, several men were rescued and all the bodies recovered.

On the morning of April 3, 1905, an explosion of gas occurred in the mine of the Zeigler Coal Company, Zeigler, Franklin County, resulting in the death of 50 men, including that of State Inspector William Adkinson, who, in a short time, had arrived on the scene and led the first rescuing party into the mine and while bravely forcing his way in search of those whom he might rescue, stepped for a moment out of the line of the air current, was seized by the deadly afterdamp and died before his companions could reach him.

Immediately after being informed of the explosion, Governor Deneen summoned the state inspectors, and the members of the Mining Board, and requested them to proceed at once to Zeigler, make a careful and thorough examination of the premises and cause of the explosion, and report their findings to him. After making two visits this commission submitted its report. In order to fully ascertain all the facts, the Governor, a few days later, delegated James Taylor, of Peoria, and John G. Massie, of Belleville, men of ability and long experience in mining affairs, to supplement the work of the others, each to make a separate investigation and report. The reports made by the different investigators are substantially the same and all agree in attributing the cause of the disaster to an explosion of gas.

December 22, 1906, a very deplorable accident occurred at the Breese-Trenton Mining Company's mine, Breese, Clinton County. Six men got on the cage to go to their working places to begin the day's work, when, from some cause not given, the cage fell down the shaft 300 feet, killing all the men almost instantly, breaking legs, arms, and crushing their bodies in a horrible manner.

On the morning of January 29, 1907, an explosion of thirty kegs of powder in the mine of the Johnston City Big Muddy Coal and Mining Company, Johnston City, Williamson County, resulted in the death of seven men. The cause of the explosion, in the opinion of the State Inspector, was due to the rough handling of the powder by the men while unloading it from the car and placing it at convenient points where the drivers would pick it up and distribute it to different places in the mine.

September 7, 1907, an explosion of gas occurred in No. 11 mine of the Dering Coal Company, West Frankfort, Franklin County. The night shift was putting in a stopping to close a body of gas; the stopping was nearly completed, causing the gas to back up against the decreasing current of air, when it was ignited by the lamp of one of the workmen. Twenty-two men were burned, of whom four died almost instantly.

The fiscal year beginning July 1, 1908, witnessed seven explosions, in which a total of 46 men lost their lives. October 6, 1908, a powder explosion in the Harrisburg and Southern Coal Company's mine, Grayson, Saline County, burned three men so badly that they died the following day. The explosion was caused by igniting a piece of fuse and inserting it into a keg of powder, which was thought to be empty, exploding it, and two other kegs partly filled.

On the evening of November 5, 1908, at the W. P. Rend Colliery Company's mine at Rend City, Franklin County, there occurred an explosion while four shot firers were in the mine. The explosion was so terrific that it put the two cages at the main shaft out of commission; shot the explosion cover off of air shaft, igniting several fires in the mine; the shaft being over 600 feet deep it required the installing of a hoist at the air shaft before the lowering of supplies could start. State Inspectors Thos. Moses of Westville, and Thomas Little of Murphysboro, assisted in the rescue work until the bodies were found. After the shaft had been repaired, the Governor, Hon. Charles S. Deneen, sent the ten State inspectors and the mining board to make an inspection of the mine and ascertain the cause of the explosion. The following is their report:

November 30, 1908.

Hon. Charles S. Deneen,
Governor of Illinois,
Springfield, Illinois.

Dear Sir:

In accordance with your directions, the undersigned inspectors of coal mines and members of the State Mining Board made a thorough examination of the coal mine owned and operated by the W. P. Rend Colliery Company at Rend City, Franklin County, Illinois. The purpose of said special examination was to ascertain the cause of the explosion which occurred in said mine at or about five o'clock p. m. on the 5th day of November, 1908, in consequence of which George Reed, John Holmes, Patrick Dailey, and Perry Stevens, employed as shot firers, lost their lives. The exploring party was led by Richard Newsam, President of the State Mining Board, and a record of observations made by Inspector Thomas Moses; several tests with safety lamps were made on the roadways, at the face of the working places and particularly at the high points where falls of slate had occurred, but no evidence of gas was discovered. After reaching the face of the first northeast entry beginning with room No. 20, we proceeded down until room No. 8 was reached. As we approached that point, indications of serious disturbances increased—falls of slate and coal crushed from pillars—broken timbers—mining machines and pit cars completely destroyed. From the mouth of room No. 8 and continuing up to the face thereof, evidences of intense heat and fire on the roof and props was observable. At the face of that room we found several shots had been fired on the night of the explosion; in fact, they were the only shots fired in any of the rooms in that entry that evening. It furthermore appeared that the shots had been placed near to the top of coal, and as the seam of coal is much softer near the roof much of it that was blown down was in a badly shattered condition. There is no question but that the direct cause of the explosion originated from these shots in the face of room No. 9, first northeast entry: that the placing of the shots so near the roof and the broken condition of the coal indicated an overcharge of powder, resulting in the generation and ignition of excessive quantities of carbon monoxide gas, aggravated by the presence of coal dust. In order to avoid a repetition of such disasters, we recommend that in all cases where coal is undercut with chain machines, the coal be snubbed or blocked down at not more than three, nor less than two feet from the bottom of the seam, and that all undercuttings produced by said machines be collected and loaded out before any shots are fired.

Respectfully submitted,

Signed by the State Inspectors of Mines and the Mining Board.

THE ZEIGLER DISASTER.

By W. S. Burris, Inspector.

On the night of November 4, 1908, at the Zeigler Coal Company's mine, Franklin County, a trap door caught fire, about 1,200 feet from the bottom of the shaft; the management fought this fire until 7 a. m., the next day, when the fire had traveled about 900 feet towards the bottom of the shaft, burning out one of the main overcasts, causing them to either seal up both shafts or have one of them consumed by fire. In a conference with Mr. Gordon, General Manager, and Mr. Blanks, Mine Superintendent, we agreed that the mine should be sealed for not less than ninety days, believing that with the air closed off it would extinguish the fire.

I was not called to Zeigler again until January 10, 1909; on that day an explosion occurred, killing twenty-six men. On investigation I found that between my visit of November 4, 1908, and January 10, 1909, the management had failed to keep the mine sealed.

Two drill holes five inches in diameter had been put down and water had been pumped into the holes; also, live steam forced down the holes at different times.

The steam entering the mine through these drill holes caused the roof to cut and fall for about 30 feet above the top of the coal. The burning of sulphur was then tried and the fumes forced into the mine with a small high speed fan. On this date, January 10, 1909, I found the mine was still on fire below as smoke was coming out of the return airway. The company had, on January 9, 27 men in the mine cleaning up falls, building brattices and driving out gas, that had accumulated in the mine. They were ventilating a pair of entries that had an accumulation of gas and the return air from this pair of entries passed directly over the place where the fire of November 4, 1908, had originated. From the evidence I received, I believe that the air had rekindled the fire and ignited the gas as it passed out over it, causing the explosion whereby 26 men lost their lives, one man escaping. I had sent for assistance, and State Mine Inspectors Thomas Moses, Westville, Thomas Little, Murphysboro, and John Dunlop, Peoria, came to Zeigler, January 11, 1909; after going thoroughly over the conditions, knowing there was a fire in the mine, and all of the workings containing gas, we concluded the only thing to do was to seal the two shafts permanently until we were sure the fire was extinguished.

The company left the shafts sealed for a period of twenty-one days, then opened them and proceeded to make an inspection with the Draeger helmets. On February 9th, they had another explosion caused by a body of gas coming in contact with a fire in the mine; three men lost their lives in this explosion.

Sixteen men were in the mine at the time of the explosion. Eight of them were standing on the bottom of the hoisting shaft, five were working on C air course putting in a permanent stopping by the first crosscut. Mr. Wilson, superintendent, Mr. Core, mine manager, Mr. Powell, mine examiner, were on C entry going south. They had found considerable explosive gas and could only go about fifteen feet at one time, their object being to get inside of third west south and place a stopping at that point to seal off south side of mine permanently while exploring the north side. When within about sixty feet of the first west south, they both heard and saw an explosion, which in their judgment, had occurred beyond a large fall located inside of the third west south entry. They immediately said "Run for your lives!" and they had only gone about 40 feet back in C entry when the wind and pressure from the explosion overtook them and they dropped to the bottom clutching the rail. After the explosion had passed back over them, they started to run again, went about 60 or 100 feet, when a second explosion, more violent than the first occurred; they lay down again and after this had passed back over them, they groped their way back in the dark towards the main shaft and from that time on it was more of a dream to them, as they were almost unconscious. The men stationed on the bottom of shaft saw the flames coming out of B entry south side of shaft. Their statement agreeing with that of the men in C entry is good evidence that the explosion occurred on south side of air shaft and from gas that was driven over top of a fire which had generated after admitting air into the mine. Three men lost their lives in this explosion. All three of them were on the bottom of the main shaft. There had been considerable water pumped into this mine used in fighting the fires, and putting it on falls where they thought fire was located. There was about a foot of water on bottom of main shaft, and none of the thirteen men that got safely out were burned. Two men that were brought out had been knocked into water and drowned. The air shaft had been lately equipped with 120 sq. ft. of explosion doors. At the time of the explosion these doors were released and the black smoke boiled out of the air shaft, this being the upcast, the main shaft being the downcast. The explosion was so terrific that the smoke even came up the downcast against the air current. Immediately after the explosion they speeded the fan up to 70 revolutions per minute, and the smoke hovered over the main shaft for a minute before the power could produce ventilation again. The men being so close to the bottom of the main shaft and the restoring of ventilation so soon after accident caused their lives to be saved. If they had been farther back in the workings, probably all lives would have been lost.

November 19, 1908, there was an explosion in the Benton Coal Company's mine at Benton, Franklin County. Six shot firers were in the mine at the time of the accident. Three of them escaped injury, but the other three were overcome by afterdamp from shooting "dead holes."

December 12, 1908, another explosion occurred in the W. P. Rend Colliery Company's mine from the same cause as that reported for the explosion of November 5. Three shot firers were killed.

On the night of February 16, 1909, there was an explosion in the Dering Coal Company's mine, West Frankfort, Franklin County. This explosion occurred about 5 p. m., while four shot firers were firing shots, and seems to have been caused by a windy shot igniting carbon monoxide gas, which started fires in the mine, and these formed a mixture that exploded at intervals of about two hours, rendering rescue work impossible. The mine was completely sealed and remained sealed 120 days. At the end of that time an investigation was made, and finding that the mine was still on fire, it was again sealed and the mine flooded. Four men lost their lives in this explosion.

THE CHERRY MINE DISASTER.

This appalling calamity, which took place at Cherry, Bureau County, in the mine owned and operated by the St. Paul Coal Company, as reported by Thomas Hudson, State Inspector for the Second District, is described as follows:

"From the most reliable reports to be obtained, the fire commenced at or about 1:30 p. m., on Saturday, November 13, 1909. The place where the fire started, was at, or quite near the landing place, in the airshaft, at the second vein, where the coal from the third vein is hoisted through said airshaft and taken off the cage at the second vein, and hauled around to the main shaft, recaged and hoisted to the surface.

The cause of the fire, from information gleaned at the mine, was a pit car, containing five or six bales of hay, intended for the third vein, was sent down the main shaft, and hauled around in the second vein to the air shaft landing above mentioned. This pit car, containing the hay, was placed near, probably directly under, a blazing open torch, placed there to give light to the cagers, consisting of two men and a boy. The oil burned in this torch was quite likely kerosene; it is also very possible that some of the oil dripped from the torch and fell on the hay in the pit car; at all events, the hay is supposed to have caught fire from the torch, and certainly could have been easily extinguished, if immediate steps had been taken to do so. The car of burning hay, however, seems to have been pushed around from one position to another in an air current having a velocity of about 700 feet per minute, until it had fired the overhead timbers. The car containing the burning hay was finally pushed into the shaft opening and fell into the "sump" at the third vein, where it was quickly extinguished; but the heavy pine overhead timbers at the second vein were by this time on fire and could not be reached because of the dense smoke; by this time the control of the fire was lost, and the result was the worst mine disaster of modern times.

Late Saturday night and early Sunday morning, November 14, the mine inspectors of Illinois began to arrive at the mine. The force was augmented later by mine inspectors from other states; one came from Indiana, two from Ohio, two from Iowa and one from Missouri. Professional experts from Pittsburgh and Champaign experimental stations, and about a dozen firemen from the Chicago fire department, were also on the ground. During the day, Sunday 14th, two men from Champaign, with helmets, succeeded in reaching the second vein through the air shaft in a sinking bucket, but could do nothing more as the smoke and steam were too dense for exploration. Both shafts were covered over and remained so during the night.

Monday, November 15: Men with helmets again descended the air shaft: they reported the temperature fairly comfortable but smoke and steam still too dense for active work. It was then decided to case the fan temporarily as an exhaust (the fan casing having been destroyed and the babbit metal melted out of the journals, when it was reversed from a blower to an exhaust during the early stage of the fire) start the fan and attempt a descent into the mine through the main shaft. This was done, and the main shaft uncovered. The air shaft now became the upcast, and men wearing helmets went down the main shaft, the cages in this shaft being in good working order; when they got to the bottom, or second vein, they found the fire raging and were forced to return to the surface; the fresh air admitted by making the main shaft the downcast had started the partially subdued fire into a blaze. Both shafts were then covered over, and remained so during the night.

Tuesday, November 16: Both shafts remained covered over during the day, which was spent mainly in taking the temperature of the mine by lowering a thermometer to the second vein, and in every case, the bottom of the main shaft at this vein was found too hot for work of any kind.

Wednesday, November 17: Temperatures were again taken and found to be about the same as on the day previous. A conference was held by the Inspectors of Illinois with those from Ohio, Iowa, Indiana, Missouri and the mining experts from Pittsburgh and Champaign, also the representatives of the Coal Company. It was decided to again have men with helmets go down the air shaft; they descended about 9 p. m. and found the temperature more favorable and no fire in sight; of course men did not leave the sinking bucket when they descended. During the night a "float" or temporary cage was constructed for use in the airshaft, should exploration work be again attempted from that point.

Thursday, November 18: The main shaft was uncovered late that day, and a line of hose put down to the second vein, and fire fighting in earnest commenced; this was done principally from the north cage, as fire was blazing on the south and east sides of the shaft, which prevented firemen from leaving the cage. The men with helmets during the day went down the air shaft on the "float" and recovered one body that had been seen on a previous trip. Fire fighting was kept up constantly at the main shaft during the night.

Friday, November 19: Progress was made, advancing on the west side shaft parting at the second vein; four bodies were found and brought to the surface. The Chicago firemen were in charge of the fire fighting below. The east and south sides of the shaft bottom were inaccessible, owing to the heavy falls of roof and burning timbers, the west side of the shaft only being open. During the day explorers got around on the south entry, and then east to a point not far from the bottom of the air shaft in the second vein, but falls of roof had to be cleaned up, and repairs made in the timbering; this was ordered done during the night. In the evening, after a conference, the Inspectors from other states and seven of the Illinois Inspectors returned to their homes, three of the Illinois Inspectors remaining in charge. This action was taken because the Inspectors considered that the company had a sufficient number of able men on the ground to take care of the situation.

Saturday, November 20: The fire was now seemingly under control,—that part, at least, which was accessible from the bottom of the main shaft; the heavy falls of roof on the east side of the shaft, probably 35 feet high, were loaded out and the smouldering fire quenched as it was reached.

At 10:30 a. m., the Illinois Mine Inspectors remaining over from the day before left the mine, urgent business in other parts of their respective districts calling them away; one of them having a mine explosion that had occurred the previous week to investigate, by which two shot firers had been killed.

It was shortly after noon on this date, when an exploring party found twenty-one men alive in the first west off of the main south entry. The imprisoned men had built "stoppings," thereby shutting out the foul gases from the fire, and depending on the purer air in the enclosed space to sustain life. They were at once removed from the mine, all but one recovering.

Telegraph messages were sent to all the Illinois Inspectors and they hurried back to the mine, several of them arriving within a few hours. During the night, explorations were made in the east entries off of the main south.

Monday, November 22: The exploring of the south section of the mine continued through the day; about 100 dead bodies were taken out of that part of the workings.

Tuesday and Wednesday, November 23 and 24: On these dates, the first northwest entries were explored, the face of the entries was reached, but no bodies were found. It was learned later that all of the men got out of this part of the mine; it was also found that there was no connection between the northwest part of the workings, where the exploration was made, and the north part of the workings on the east side of the shaft, where many men were known to be at work the day the fire started.

While the explorers were in the northwest entries, smoke was found issuing from the main passageway which connects the west shaft parting with the air shaft and which was closed by a fall of roof and a temporary stopping; the explorers in the northwest section were hastily recalled, then the temporary stopping was pulled down, and a stream of water from the fire hose turned in, and all signs of fire subdued at that point, and a more substantial stopping put in during the night.

About 2 o'clock a. m., Wednesday, the 24th, a party of four went down into the third vein. On their return they reported from 3 to 4 feet of water covering the floor of the mine in the lower parts of the workings, and that they had found groups of men in the dry parts, all dead. Pumps were being made ready in the meantime to remove the water, partially at least, from the third vein workings so that the bodies could be recovered.

During the succeeding few hours, however, it was noticed that the fire from the south and east sides of the main shaft was slowly encroaching on the shaft itself. Holes were cut in the shaft lining as high as 30 feet from the bottom and streams of water thrown in behind the shaft lining; but the steam and smoke continued to issue from the openings cut and also from the sides of the shaft, in increasing quantities; to offset this a board stopping was built around the south and east sides of the shaft, and as close thereto as the workings of the cages would permit, and a stopping closed tight, near the bottom of the air shaft. The object of this was to deaden, or partially subdue, the fire thought to be burning between those points. This, however, was not entirely successful, as the smoke from behind the shaft lining, which formerly passed to the east and around to the upcast or air shaft, was now carried to the west side of the main shaft, and the rescuers there practically driven from the mine.

A strong smell of coal smoke was noted, indicating that the coal pillars were on fire, and as the gases given off by burning coal were known to be dangerous, great caution became necessary. Some time shortly after midnight on the morning of Thursday, November 25, a consultation was held, at which, the President of the State Mining Board, chief of the fire department, expert helmetmen from Champaign, the Illinois mine inspectors and representatives of the St. Paul Coal Company were present. The situation was discussed from every possible point of view, and it seemed to be the unanimous opinion of all present, that all of the men in the mine were dead; and the best way, looking to the recovery of the bodies later, was to seal up both of the shafts while they were in this condition, to be entered as soon as the fire was extinguished.

The sealing of the shafts was commenced early Thursday morning, November 25th. A two inch pipe was inserted in the concrete cover of the main shaft, so that the temperature, pressure and condition of the air from the mine could be obtained at short intervals, and the exact conditions of the underground workings of the mine understood.

REOPENING OF THE CHERRY MINE.

Both shafts of the Cherry mine were securely sealed over with steel rails and concrete on the morning of November 25, 1909, and remained sealed until February 1, 1910.

During this interval, daily readings of the temperature in the main shaft had been taken and were found to range from 123° on November 29, four days after the shaft was sealed, to 121° December 1; 93° December 10; 84° December 20; 74° December 30; 70° January 10: 68° January 20: 66° January 29, and the same on February 1, when the shaft was opened; this was assumed to be the normal temperature of the mine under existing conditions.

In the opening up of the main shaft, an aperture about three feet square was cut in the concrete covering, just above the cover of the north cage, which had been left suspended directly under the concrete cover when the shaft was sealed; the south cage had been taken off.

The same day this opening in the concrete cover, two men, Webb and Moses, wearing oxygen helmets, were passed on to the cage and lowered to the second vein. After an investigation around the bottom, they were hoisted to the surface, and reported conditions just about as they were when the shaft was sealed up, except, no signs of fire nor smoke were visible, and the temperature at the bottom of the shaft normal and quite comfortable to work in. They descended a second time, and brought up a sample of air for analysis, in which "black damp" or carbon dioxide predominated.

Late in the same afternoon, the concrete covers from both the main and the air shafts were removed, and the fan started up as an exhaust, that is, the fresh air was drawn down the main shaft and up the air shaft. The Capell fan, which had been warped and twisted with the heat during the fire, had been taken away and thoroughly repaired and again put in position and cased in a substantial manner.

After short interval, to allow the fan to clear the passage or west "runaround" between the main and air shafts, two of the State inspectors, with safety lamps, descended the main shaft and found a good current of air passing from the main or downcast towards the air or upcast shaft. They returned to the surface and reported the mine in a safe condition for workmen with naked lights to enter, which they did, and during the night repaired and reinforced the brattice around the east and south sides of the main shaft—also commenced to clean out the west passageway or "runaround" to the air shaft, which was found in a very bad and dangerous condition, owing to falls of roof, broken timbers, etc.

It was considered that the best and safest method was to employ only a limited number of men underground, a number just sufficient to open up the west passageway to the escape and air shaft. After this road is opened and the air shaft put in order to take men out of the mine, an escapement or two ways out of the mine, will be available. This will make men working below feel more safe, as it is not likely that the fire can break out at both shafts at the same time. The cleaning out and retimbering of the west passageway to the air shaft continued to be slow and dangerous work, impeded, as it was, by heavy falls of roof. By a good deal of hard and dangerous work, a small opening was made over, under and by the side of the falls in the west passageway to the bottom of the airshaft, and through this opening boards were taken and a "stopping" put in on the north side of the air shaft to prevent any sudden breaking out of fire from that direction.

Cleaning up and retimbering between the two shafts continued, care being taken to keep a close watch on all stoppings to prevent leaks or a sudden breaking out of fire.

The body of a man which was known to be lying at the second vein landing at the air shaft was brought to the surface February 14, in a sinking bucket.

February 5: A large steam pump was sent down to the main shaft to the second vein. An extra covering of brattice was put around the east and south sides of the bottom of the main shaft at the second vein. The concrete was slipped away from around the collar of the airshaft, and a "float" put in, and suspended just below the surface, ready for carpenters to make permanent repairs to the burned-out portion of the air shaft.

February 6: The west passageway from the main to the air shaft was now cleaned out and securely timbered and open for the passage of pit cars. An entry is being drawn in the shaft pillar around the north side of the main shaft and the heavy fall of roof on the east bottom, to connect again with the shaft bottom on the east side, inside of the burned-out timbers and fall. This entry will give access to the east and northeast sections of the mine and to the air shaft by way of the west passageway. Men were cleaning up the main south entry on the west side to recover rails, ties, pit cars and other material. The use of the cages in the main shaft was taken up most of the day by workmen making pipe connections for "steam jets" to throw water from the third vein to a tank located at the second vein, where it is taken up by the steam pump at the second vein and thrown to the surface. The emergency cage at the third vein, main shaft, was hoisted to the second vein and reduced to a size suitable to allow the steam jets to pass to one side of it.

February 7 and 8: Work in the mine was progressing slowly; cleaning up the south entry, west side; driving the entry around the main shaft and fall on east side, also fitting water and steam pipes in the main shaft for pumps and injectors.

February 9 and 10: When steam was turned on to the injectors and pump, the heat caused the pipes to expand, they were thrown out of line and were struck and broken by a descending cage. A concrete stopping was put in on the second east entry, west side, near the bottom of the airshaft.

February 11 and 12: The pipe line was repaired and started up but was broken again but repaired, and at 8 a. m. the 12th both pump and injectors were working steadily and doing good work. The entry around the main shaft was driven in 120 feet and has about 70 feet more to be completed.

February 13 and 19, inclusive: The work done during the week consisted in holding the entry into the main bottom east side, and putting a concrete stopping across the main bottoms inside of the east opening, to the mule stables; cleaning up heavy falls of roof on the main north entry, east side, and in the east passageway or runaround in the air shaft.

Fifteen bodies were recovered during the week; all were found near where the new entry connected with the main bottom inside of the large fall thereon.

The shaft timbers in the main shaft were again giving off considerable smoke and heat, showing quite plainly that the fire was smouldering behind them, and in dangerous proximity thereto. Pumping from the third vein was suspended until more brattice could be put around the bottom of the main shaft to keep back the fire.

February 20 and 21: The pump and injectors were still idle, as the steam given off prevents a close watch for fire being observed on the main shaft. Three more bodies were recovered on the 21st; they were found just outside of the second door going south in the east passageway to the escape shaft. The pumps and injectors were started again but shut down later, because of the smoke and heat from the shaft lining.

One more body was found on the evening of the 23rd under a large fall of roof on the main north entry, east side.

The east passageway to the air shaft was cleaned up and retimbered and in shape for the hauling of pit cars.

February 27 to March 5: During the week ending March 5th, cleaning up of the north entry, east side, was continued, and sixty-five bodies in that section of the mine were recovered.

March 6 to 13: The northeast workings of the second vein, were quite thoroughly explored, and rails, pit cars and other material taken out; pumping water from the third vein was continued. An injector was put in at the air shaft, to raise the water from the third vein to the second and a pump was installed at the second vein to raise the water to the surface. The water at the airshaft in the third vein was reported to be two inches below the "door heads" on March 9th; on this date, the main shaft was again giving off heat and smoke,—so much so that all of the men, also two mules, were brought out of the mine, and carpenters again put to work patching up the brattices. A wooden form was put around the east and south sides of the main shaft, and about six inches of sand bedded therein to shut off the smoke. The sand packing proved successful, the smoke being practically shut off. The injectors and pumps at both shafts were in operation, the water at the bottom of the air shaft in the third vein was nine inches below the door heads March 13.

March 29: Richard Newsam, president of the State Mining Board, and four State inspectors of mines, some of whom had been on duty continuously since the opening of the mine February 1st, went down from the second and third vein on the emergency cage at the main shaft. They found about two and one-half feet of water at the cage landing; the shaft bottom, east and west, also the mule stables, where heavy, permanent timbering had been done, were all found standing intact. After leaving the main bottom, however, large falls of roof were found; in fact, the entries around the shaft pillar, in every direction, were practically closed. This condition required a great deal of time and labor, before the bodies known to be in the third vein were reached.

April 1 to 6: The work of cleaning up the falls in the north section of the third vein was continued. Connections having been made between the main and airshafts, at the third vein.

April 7: Mine Inspector McAllister, mine manager Frew and John Fraser, a shift foreman, by climbing over falls, broken timbers and other obstructions, located the bodies of the men in the third vein. They were found at the end of the north air course, running direct from the bottom of the air shaft, just at the north boundary of the shaft pillar. Workmen were at once started to clean out the air course, north from the main shaft bottom, as this was the nearest and quickest way to reach the bodies.

April 10: One body was recovered from the third vein; April 11, thirty-five bodies were taken out; April 12, fifteen bodies were taken out, making fifty-one bodies in all taken from the third vein. The bodies of these men were found comparatively close together within a radius of not more than about 100 feet.

The four State inspectors, who had been on duty by relays since the opening of the mine, February 1st, considering that they could be of no further service, or not until the fire area should be broken into, left for their homes April 13, 1910.

OPENING OF THE FIRE AREA AND SECURING THE SHAFTS IN THE CHERRY MINE.

After the recovering of the bodies from the third vein April 12, about thirty days were consumed in removing the pit cars, track, timber and everything of value from the interior workings of the second vein, it having been decided by the company to abandon that seam permanently.

May 14: After a narrow entry had been driven through the shaft pillar on the west side, to connect with the pump room, an opening of about 12 feet wide, and 70 feet in length, running from the south end of the main shaft to the stable in which the fire was known to be burning; another opening was made into the pump room, where a good deal of fire was in evidence, especially the coal "ribs" which were actively burning, but with an abundant supply of water, under a 300 foot head, and the necessary hose connections, and the fire was easily kept under control, and the shale roof which had fallen to a height of fully 30 feet. was loaded into pit cars and sent out of the mine.

As soon as sufficient space was cleaned, two sets of heavy timbers were set up, and on top of these "cogs" were formed and built up to the top, and the roof secured.

The building of the "cogs" was most difficult and dangerous; difficult, because of the intense heat, which was more intense as the "cogs" were placed higher; and dangerous, because of the unreliable nature of the roof, large slabs of which fell or were liable to fall at all times.

The heat was partially overcome by putting a small air compressor into operation and carrying compressed air down the shaft in pipes and thence through hose to the men at work. As soon as sufficient space was cleared, and the roof temporarily secured by "cogging," a base for concrete dams or stoppings was formed by cutting down into the floor and into the sides of the opening or entry, and a concrete stopping built, close to where the pump room connected with the stables. The same methods described above were used in breaking into the fire area on the shaft bottom, east of the main shaft, and on the north side of the air shaft.

The conditions encountered were similar in each case, but differed somewhat in degrees; that is, more fire was found on the main shaft parting than in the pump room and less north of the air shaft.

After the fallen roof had been removed from around both shafts, the work of thoroughly securing the same with concrete was commenced. On the east side of the main shaft a heavy wall or "backing" of concrete was built against the shaft timbers, and at right angles thereto; three walls of concrete, one on each rib and one in the center, were built to connect with a concrete stopping about 28 feet east of the main shaft. These walls are built to within a foot of the roof, about 30 feet high, and across them are laid steel rails and wedges driven between the rails and the roof, thoroughly securing the latter.

Openings were left in the concrete walls around both shafts, to admit the passage of anyone desiring to examine or inspect the walls and stoppings.

Practically the same methods as described above were used to secure the south side of the main shaft and the north side of the air shaft. The "old works" of the second vein were completely cut off from the main shaft by permanent stoppings and a new entry driven around the main shaft and through the shaft pillar to the air shaft.

Through this entry, pipes were laid connecting the "rings" in the air shaft, which gives off an abundance of water, with a concrete reservoir built near the main shaft at the second vein. From this reservoir the third vein will obtain its water supply for fire-fighting purposes. The distance between the two veins being 160 feet, the pressure due to the altitude will be about 80 pounds per square inch.

During the week ending August 13, steel guides were put in between the second and third veins, new ropes put on the cages running down to the third vein; and the cleaning up well under way. September 3, the cleaning up had progressed so far that the coal face had been reached at five or six different points and by October 1, 1910, the mine was again in a coal-producing condition.

(Signed) Thomas Hudson,

Inspector.

December 23, 1909, an explosion of gas in mine "A" of the Chicago and Carterville Coal Company, Herrin, Williamson County, resulted in the death of eight men. Going into the entries, (which had been pronounced free from gas), with an open light, the gas was ignited and the explosion resulted.

December 27, 1909, four shot firers were killed in No. 5 mine, Centralia Coal Company, Centralia, Marion County. The cause of this accident was an explosion of gas, generated by the excessive use of blasting powder.

November 11, 1910, there was a gas explosion in the Shoal Creek Coal Company's mine, Panama, Montgomery County, resulting in the death of six men, injury by afterdamp to eleven, and imperiling the lives of 386 other employees. Two miners went into the mine to secure the tools of one who had been discharged, and, although cautioned not to go into a certain entry because of gas there, they went with open light, and the explosion resulted.

February 13, 1911, a deplorable accident occurred at the No. 3 mine of the Saline County Coal Company, Harrisburg, in which four men lost their lives. This was a new mine, the shaft had just been sunk, and the sinking buckets were still in use. The afternoon shift was timbering and had come on top to eat supper. Returning to their work, the men were being lowered in the sinking bucket to the platform, about 80 feet down the shaft; one load having been landed, three men got in the bucket ready to be lowered. The top man noticed that the safety link attached to the hook which fastened the rope to the bucket was not in place and called the attention of the men to the fact, when one of them said, "Let it go at that." The top man then gave the signal to lower. Two men were on one side of the bucket and one on the other, which caused it to tip. The hook became detached from the rope and the men and bucket were precipitated to the platform, killing them and one other who had preceded them.

October 23, 1911, eight men lost their lives in O'Gara Coal Company's mine No. 9, Harrisburg, Saline County. This company was operating mines No. 9 and No. 4, which were connected at the face of the main north entry of mine No. 9. Number 4 mine, had been closed for repairs in the main shaft and it seems that the section of this mine nearest number 9 mine had not been sufficiently ventilated. These men were working near the connection of these mines when an explosion occurred, blowing the door down between the two mines, allowing afterdamp to rush onto them, causing their death by suffocation.

January 15, 1913, an explosion caused by firing two dead holes in Crescent Coal Company's mine, Peoria, resulted in the death of three men, two of them shot firers, the other a miner, who were overcome by afterdamp caused by the explosion.

February 19, 1913, four men were killed in Eldorado Coal and Mining Company's mine, Eldorado, Saline County, by an explosion of gas. These men had just arrived at their working places when they came in contact with an accumulation of gas, which ignited and resulted in their death. Whether or not the mine had been examined that morning and this particular place marked dangerous is not disclosed in the report. Several others injured, two of whom were thought to be dead when brought to the parting, but were resuscitated by patient work of more than half an hour. Soon after these men revived it was found that three of the rescue party, who had rushed into the affected portion of the mine, were down from the effects of noxious gases. Again the pulmotors were brought into use and it was only through the efficient work of the men in charge that their lives were saved.

October 25, 1914, occurred a very disastrous explosion of gas in the Franklin Coal and Coke Company's No. 1 mine at Royalton, Franklin County, in which 52 lives were lost. There is no record of the cause of this disaster on file in this Department save the mere mention of the fact, found in the 1915 Coal Report, and the verdict of the coroner's jury, which was the same for each one, and is as follows: "Deceased came to his death as the result of an explosion in the mine at about 7:25 a. m., October 27, A. D. 1914."

April 5, 1915, an explosion occurred in the Shoal Creek Coal Company's mine at Panama, Montgomery County, which resulted in the death of eleven men. The verdict of the coroner's jury in each case was: "Deceased came to his death on the 5th day of April, 1915, at or about the hour of 7 o'clock, a. m., in the Shoal Creek Coal Company's mine, No. 1, Panama, Illinois, from effects of an explosion and the afterdamp following same."

July 27, 1915, an explosion of gas in the United Coal Company's mine No. 1, Christopher, Franklin County, resulted in the death of eight men.

December 8, 1916, a fire broke out in Johnston City Coal Company's mine, Johnston City, Williamson County, in which three men lost their lives by being overcome by fumes and smoke.

May 12, 1917, an explosion of gas in Saline County Coal Company's mine, Grayson, Saline County, killed four men.

June 2, 1917, an explosion of gas in W. P. Rend Coal and Coke Company's mine, Herrin, Williamson County, killed nine men.

September 17, 1917, five men were killed in the Chicago, Wilmington and Franklin Coal Company's mine, Orient, Franklin County. These men were on the cage when the counterbalance left the guides, allowing the cage to fall to the bottom.

REPORT OF THE EXPLOSION OCCURRING AT MINE NO. 18 OF THE BY-PRODUCTS COKE CORPORATION ON JULY 26, 1917.

Hon. Evan D. Johns, Director, Department Mines and Minerals:

The explosion originated on the 5th north panel entry 1st west south at room No. 1, while the motor trip of empty cars was passing into the panel. The gas was ignited either by the light of the motorman or triprider, or by the sparking of the trolley wheel against the trolley wire hangers. The explosion traveled out in the opposite direction to the travel of the motor trip. The motorman and triprider were burned but slightly; the motorman was merely singed. The trapper boy was located directly in the path of the explosion at the intersection of the 5th north panel and the first west south entry about 120 feet from the explosion origin. He was severely burned, and died the same night. A road cleaner was working about 200 feet from the trapper boy and he was burned severely, though probably not fatally.

The zone of explosion is very limited, extending to room No. 3 on the 5th north panel and about 250 feet outby from the intersection of the entries on the 1st west entry. All stoppings in the vicinity are of wood, but none of these were damaged. The only damage done to the ventilation was the breaking of the top hinge of the door between the 1st and 2d west south entries at the 5th north.

The intersection of the 5th and 6th north panels and the 1st west entry is on a knoll; the panels dipping on a steep grade towards the faces and the first west south dipping outby from the intersection. The haulage roads throughout the vicinity are covered with motor sand and that was an important factor in localizing the explosion. Twenty men were at work in the 5th and 6th panels and it is fortunate that the explosion did not travel that way. Coal dust entered into the explosion, but the presence of sand evidently retarded its propogation farther than 250 feet along the 1st west south entry. One reason that the explosion did not travel down the panels is due probably to the dip towards their faces.

The gas was produced by the squeezing of the upper strata on the 3d and 4th north panels and the 5th north panel rooms. Evidence of this squeezing has been seen for several months. Room No. 1, where the explosion originated, has been caved for some time. Extra examiners were employed to examine for gaseous conditions, but it is doubted that they examined the top of fall in room No. 1 on this day. It is evident that an accumulation of gas existed on the top of the fall. The gas was forced out by a fall of rock, just as the motor was passing.

The 5th north panel squeeze is still producing gas and the 1st west section of the mine is not working.

(Signed) J. E. Jones,
State Mine Inspector, Eleventh District.

EXPLOSION IN MINE NO. 11, OLD BEN COAL CORPORATION.

The following is a verbatim report of an explosion at Old Ben Coal Corporation's No. 11 mine:

To the Honorable State Mining Board of Illinois,

Gentlemen: We, the undersigned inspectors, having been detailed to make an investigation as to the cause and origin of the explosion that occurred at the Old Ben Coal Corporation's No. 11 mine at Christopher on November 29, 1917, by which seventeen men lost their lives, beg to submit to your honorable board the following report:

At 10:30 p. m. on November 29, 1917, a call was sent out from Old Ben Coal Corporation that an explosion had occurred at No. 11 mine at Christopher. The State Inspector for that District sent out a call for assistance and at once arranged with the railroad company for an engine to take the rescue car from Benton to the scene of the explosion, arriving about midnight.

It was found that the fan was not damaged and was still running and the top of the air shaft was covered with boards where the explosion doors had been blown off, and the air was still going down the air shaft and up the hoisting shaft and that there were seventeen men below.

The air shaft was fitted with cage hoists and a stairway, the cage was out of commission and blocked at the bottom by debris; this consisted of about 140 feet of curbing, guides, concrete, partition, steel buntings and steel stairways.

The rope of the hoisting cage was disconnected from the hoisting drum and a bucket was slung into the shaft; after making five trips down the air shaft, it was decided that it was impossible to get into the mine by way of that shaft.

It was then decided to go to the hoisting shaft and ascertain what could be done there. It was then found that one cage was blocked in the hoisting shaft while the other was blown up into the tipple and badly wrecked. A temporary sheave was fixed over the hoisting shaft and a bucket was slung; after reaching the bottom of the hoisting shaft, a fire was located and extinguished on the northwest side of the cage room; after making four trips to the bottom, it was found that the air was coming direct from the air shaft to the hoisting shaft. It was then concluded that in all probability the men were all dead, and after the guides had been examined and found all right at one side, it was decided to disconnect the rope from the blocked cage and erect a temporary cage for the other side. It was then about 10:30 a. m., November 30.

After the cage was ready, a party went down and investigated conditions around the cage room, machine shop, and as far as the mouth of the first northwest entry.

It was found that the air was charged with afterdamp to a dangerous degree. It was then decided that it would be safer and quicker to reverse the ventilation, making the hoisting shaft the downcast and the air shaft the upcast.

Then the work of getting material down and building brattices, all of which had been blown out, was commenced. Several teams were organized from different parts of the district and a great number of mining men from all parts of the country, responded freely, and rendered valuable and heroic assistance. A careful search for the bodies was then commenced and in this search the helmet teams are deserving of the very highest praise. No one except those experienced in such matters can form anything like an adequate conception of the high morale, as well as physical courage, it requires to enable a man to don a helmet and go into that deadly atmosphere and witness all the horrors as well as face the dangers, and know that he will have to do it time after time. These men stood nobly to their task and proved their right to rank amongst men who dare to do their duty despite dangers and difficulties and they certainly merit the approval of the community.

The position of superintendent and mine manager immediately after an explosion is indescribably trying, yet, as demonstrated at Old Ben Mine No. 11, they may always count upon the sympathy and willing help of neighboring superintendents, mine managers, rescue teams, mine inspectors and the Department of Mines and Minerals, in the arduous work of rescue and recovery of the mine.

Mr. Evan D. John, Director of the Department of Mines and Minerals, arrived at the mine immediately after the explosion had taken place and assisted in the work of recovering and rescuing those in the mine. He brought to bear on the calamity the skill and experience of a lifetime.

The Rescue Car of the Federal Bureau of Mines was on the ground throughout the work done and valuable assistance was given by the members of the Federal Bureau of Mines in aiding in rescue work.

The teams which took an active part are the following:

Benton team; Herrin team; Duquoin team; Orion team; Dewmaine team; Carterville team.

Bodies Nos. 1 and 2 were found in the machine shop; No. 3 and 4 were found on main east line close to runaround. Nos. 5, 6 and 7 were found near No. 5 room on 3d east panel on 3d northwest. Nos. 8, 9, 10, 11 and 12 were found on parting on first northeast. No. 13 body, that of William Webb, the pumpman, was found about 142 feet back from face of main east entry. During this time, several fires had been encountered and extinguished, but on December 3 a serious fire broke out in the first northeast, and on account of the large amount of gas in the mine and the liability of another explosion, it was decided at once to seal off all the entries around the shaft and extinguish the fires before the other four bodies could possibly be recovered.

And in doing this several factors had to be taken into consideration, viz: The possibility of sealing off the fires and yet make it possible to continue the repair work in the shafts, as well as around the shaft bottoms and to repair the main air crossings. To do this it was found necessary to put in 13 stoppings in all; 1 direct south of shaft; 2 in main and back east; 2 in first and second southeast; 2 in first and second northeast; 2 in main and back west; 2 in first and second southwest; 2 in first and second northwest.

It is obvious that by putting these stoppings well inside it accomplished all that was desired, viz: to repair the shafts and round the bottom; maintain the ventilation around this area; subdued the fires and also rendered the breaking of the seals and recovery of the mine a comparatively easy matter.

It was not until January 16, 1918, that it was found it would be safe to open up the seals, which was done, and the work of recovering the bodies of the other men was commenced. On the night of January 17, 1918, three more bodies, Nos. 14, 15 and 16, were found in the first crosscut in No. 5 room off fourth east off of third northwest.

The body of the other man, No. 17, was found on the parting behind some cars on the first northeast on January 29, 1918.

It was not until January 31 and February 1, 1918, that we could commence with our investigation and could then only take those districts where the ventilation had been sufficiently restored to permit us to enter. The districts are dealt with here in the order in which we took them.

Starting point: Fourth southeast at mouth of fourth south on main east entry air crossing was blown out entirely and position of debris showed that force had been exerted from north to south inside crosscut between main and back east entries, and opposite fourth northeast found soot deposits on roof and sides and indications of the coal being slightly calcined and the sides striated; also showing that force had traveled from north to south at second crosscut east of fourth south; a trolley wire hanger was bent towards the west; at 24 feet east of ninth crosscut we found one plate of the motor cover; at 30 feet we found one more and at 12 feet east of the 11th crosscut on main entry another part of the motor cover was found; motor was found at 12th crosscut east of fourth south and all indications on the motor showed that it had been struck with terrific force on the east end, showing force traveling west.

The door at the fifth north off main east was blown 10 feet south, but not entirely broken up, indicating that the door must have been open before the explosion.

The sides and roof at the mouth of the fifth and sixth southeast were coked distinctly and showed signs of intense heat; there was no sign of coking on main east entry at this point. At nineteenth crosscut, or cut-off, between main and back east entries, a canvas door stretched on a wooden frame was found off the hinges, but not destroyed, showing that it must have been open at the time of the explosion, or so light a structure would have been shattered.

The pumpman's body was found six feet east of the 19th crosscut and his cap and lamp were found 12 feet further east; the cap was partly burned.

At the 19th crosscut the entry makes a rise east of about 12 per cent and a total rise of about 10 feet. Midway between 20th and 21st crosscut, a miners' box was found and the powder inside was burned, but the outside of the box showed no signs of burning. This was permissible explosives, nitro-compound. From midway between 20th and 21st crosscuts, the entry dips east at about 12 per cent and a total dip of about 10 feet; there was considerable coking on the main east entry at 21st crosscut; also in the crosscut itself and on the back east entry.

Investigation continued on February 15, 1918. All indications on the 3d northwest showed the force to be traveling from north to south; on the motor parting, a long trip of cars was standing, several of which had been thrown off the track.

Indications showed that the force of the explosion on the third east panel off the third northwest was from west to east. A motor standing at mouth of No. 2 room on third east off third northwest was badly wrecked; on west end of motor at this point there were heavy deposits of soot. On third and fourth panel west off northwest there was much soot deposited and much coking on roof and sides, showing intense heat.

Investigation continued February 16, 1918.

In the first and second west panel off the third southeast the force of the explosion was from east to west and all the stoppings in crosscuts were blown north. On the third and fourth southeast entries the force was from north to south. The force of the explosion on the first and second east and third and fourth east panels off fourth southeast was most generally from east to west.

A most peculiar feature about the first and second southeast showed the force to have traveled from the face of both these entries, stoppings in crosscuts were blown both ways, yet on the third and fourth southeast they were nearly all blown south.

The force on the third and fourth west panel off the third northeast had traveled from east to west. The force on the first and second northeast was north and on the third and fourth west panel off first northeast it was west. The violence ceased at the third crosscut north of the sixth west panel on first northeast.

At a point on the first northeast opposite the fourth crosscut north of the sixth west panel some grading had been done, and the fire clay had been cut through for a distance of 100 feet with an average thickness of 1 foot 6 inches.

And from this point going north the entry was covered with a large amount of sand. There was quite a grade against the load and sand had been used and the used sand had been constantly thrown to the sides and allowed to accumulate for a distance of 400 feet.

Beyond this point going north the force of the explosion ceased and all doors and stoppings going towards the face of the first and second northeast were still intact; the distance from the sand to the face of the first and second northeast entries is about 1,400 feet. We understand that the ventilation was good in these entries before the explosion.

The roadways and sides of roads on the fifth and sixth east panels off the first northwest were sandy for a distance of 300 feet from the first northwest and an evidence of violence was observed on these entries.

There can exist in the minds of experienced men no doubt as to the reason the explosion did not travel into those entries where the track and sides of roadway were covered with sand, as it was a dust explosion and the fine, gritty particles of sand and fire clay would be thrown into the air; the flame coming in contact with this cloud of incombustible dust would retard and would of course expand and having no fine coal dust to feed upon, it would be cooled below the temperature necessary to continue its force and so would exhaust itself.

This incident gives us a vivid illustration of the effectiveness of shale dust or sand to stop an explosion, or to localize one, should one occur in any district.

The force of the explosion on the main west entries was from east to west and all stoppings were blown north except a few near the face of the west entries.

There was no sand used on this entry; the stoppings near the face of main west were blown south. The face of the fifth and sixth, also seventh and eighth northwest, also fifth and sixth, and seventh and eighth southwest, as well as the face of the main west entries showed signs of coking and heavy soot deposits.

Sunday, February 17, 1918.

In the first and second northwest, all indications pointed to the fact that the explosion had traveled through the panels from east to west and had crossed the first and second northwest and on west and had crossed the third and fourth northwest still going west. There was abundant evidence that as the explosion had crossed the first and second northwest it had expanded and showed indications of having traveled both north and south.

Monday, February 18, 1918. The same condition was observed at the third and fourth northwest.

And these same conditions prevailed on the south side of the main side of the main west, both on the first and second southeast and third and fourth southwest.

The same conditions were observed on the first and second southeast of the explosion having traveled through the panels from east to west; especially was this clearly indicated at first and second east panel off first and second southeast, also at third and fourth east panel off first and second southeast.

One very significant feature of this explosion and one that indicates the terrific force as well as showing the high velocity of the explosion, shows the terrific volume of flame when confined to one path; the dust traveling with the blast had actually polished the roof and sides just in the same manner that a sand blast will polish anything.

We found that men had been loading dust on the main east, those numbered 3 and 4, and on the first northeast at motor parting, men whose bodies were found there and numbered 8, 9, 10, 11, 12 and 17.

We also obtained evidence that shows that the pumpman was talking through the telephone at the bottom of the shaft to the engineer some 7½ or 8 minutes before the explosion.

Also, we are firmly convinced that the door at the fifth northeast and also the canvas door spoken of further east had been open, thus short-circuiting the air and allowing gas to accumulate in the main east entries.

The pumpman took the big motor from the shaft bottom and ran into the main east; stopped his motor at the pump and evidently walked down there to get to the valve in the main east and ignited the gas at the high point mentioned—the position of his body indicates this; in taking the motor in, he had, no doubt, raised considerable fine dust and put it in suspension in the air; as he must have been running at a high speed and against the air, this added to the dust already in suspension in the air, from the point where men were loading dust.

Then the concussion of the exploding gas would put more dust in suspension and the flame of the gas explosion projected into this dust-laden atmosphere at a high velocity and intensity produced what, in our opinion, was probably the most terrific explosion in the history of coal mining in Southern Illinois.

After careful observation, we have arrived at the conclusion that this was a typical coal dust explosion, caused by the pumpman having ignited some gas in the main east entry, where it had accumulated, in consequence of the door being left open as already stated, and in doing so, we paid due regard to all the important factors that determine the character of a dust explosion, viz:

1. The physical character of the dust—its fineness, inflammability and porosity, and its percentage of volatile matter.
2. The free suspension of dust in the air.
3. The temperature and hygrometric conditions of the atmosphere.
4. The condition of the mine with respect to dust and moisture.
    1. So far as could be determined, the dust was fine, inflammable and flocculent.
    2. Dust was also freely suspended in the air.
    3. It is well known that the atmospheric conditions were suitable, as we had a cold wave coming over. This would help to absorb the moisture from the dust.
    4. There was little moisture and large quantities of dust in the mine.

To explain the peculiar freaks of this explosion in apparently traveling in different directions and actually to have traveled back along its own path, it is only necessary to mention that under favorable conditions in a dust explosion, one pound of this fine, inflammable dust suspended in the air and subjected to the flame of an explosion of gas.

would produce a volume of carbon monoxide equal to 31.5 cubic feet measured at a temperature of 60 degrees Fahrenheit and an atmospheric pressure of 14.7 pounds per square inch, and that this, again disseminated in the air would produce an explosive mixture equal to 2,440 cubic feet at its maximum.

It must also be remembered that any carbon dioxide formed by an explosion in an excess of air may be again reduced by the intense heat in contact with unburned incandescent carbon dust to carbon monoxide, thus continuing and extending the explosive range. This, to a certain extent, accounts for the persistency of a coal dust explosion, for, wherever the explosion finds a place to expand, it will do so, and its velocity is then lowered; the heated carbon monoxide in the trail would draw a supply of oxygen from the rooms or increased area and would again explode and travel back along its own path. This, we found from the evidence, actually had happened more than once.

In determining whether an explosion was a purely gas explosion or dust explosion, it must be remembered that in a gas explosion it can only extend as far as the amount of gas exploded can expand, and that marsh gas explosions may be extinguished by an atmosphere containing 10 per cent of carbon dioxide, while it requires an atmosphere containing 24 per cent of carbon dioxide to extinguish the flame of exploding carbon monoxide. It must also be remembered that the afterdamp of a dust explosion almost invariably contains much carbon monoxide, which, owing to its wide explosive range, is not as liable to be extinguished by the expansion and cooling of the gases in more open workings as marsh gas is. This accounts for the phenomenon of what is termed the recoil or return flame of a dust explosion.

As the first explosive blast sweeps through an entry, it leaves behind it a trail of hot and generally inflammable gases, consisting chiefly of carbon monoxide and nitrogen. The immediate cooling of these hot gases, due to expansion, causes a depression or fall of pressure in the entry, and, as a consequence, air rushes out from the rooms or other workings. Thus a fresh supply of oxygen is furnished, and the flame having been arrested in its advance by the increasing effect of the depression behind, or by its own expansion and cooling starts to turn back on its own trail. This second burning may be less rapid and violent, but is generally hotter, than the first blast.

In conclusion, we fully realize that we cannot too strongly deprecate or condemn the action of those responsible for allowing the dust to accumulate in this mine to such an extent as to become a menace to the health and lives of workmen and also a source of danger to the property. And, having regard to all the facts, we are fully persuaded that in mines known to generate fire damp, some definite system of examination should be adopted and maintained, so that the workings would be examined by a competent man after an idle day or a holiday before the night crew were allowed to go inside. Had this been done in this instance, those open doors referred to would have been noticed, and the accumulation of gas in the main east would have been detected and dealt with, and seventeen human lives would have been saved to their families and to the country.

(Signed) JOSEPH C. THOMPSON,
State Inspector, Tenth District,

FRANK ROSBOTTOM,
State Inspector, Ninth District,

T. C. WRIGHT,
State Inspector, Eighth District,

H. T. BANNISTER,
State Inspector, Twelfth District,

JAMES TAYLOR,
Mining Investigator.

EXPLOSION AT BELL & ZOLLER MINE.

Hon. Evan D. John, Director, Department of Mines and Minerals,
Springfield,

Sir: The following is a short statement covering the explosions which occurred in the mine of the Bell & Zoller Coal Company, located at Zeigler, Illinois, December 5 and 6, 1917.

On the morning of the 5th, we were notified of a slight explosion having taken place at the above named mine. In company with Mr. John O'Rourke, County Mine Inspector for Franklin County, John E. Jones, Safety Inspector for the Old Ben Coal Corporation, and Mr. William B. Plank of the Federal Bureau of Mines, we arrived at Zeigler about 12:00 o'clock noon. We were informed that the mine manager and pit committee had gone to the edge of the old works on the 3d and 4th right off the 4th east south, and from statements made, learned that some gas had been ignited.

We went into the mine, and along the main entry, when we were met by two men coming toward the bottom who had been badly burned by a second explosion, in the course of an investigation made by them at the place where the gas had been ignited the first time. We concluded that the gas had been ignited the second time either by the flame of a naked light, or a damaged safety lamp. From one of these explosions a fire had been started in the old works. We decided that the best thing to do was to build stoppings and seal off this pair of entries, and had the work well in hand when the third explosion came, about 4:00 o'clock p. m. The flame came out into the entries where the seals were being built, and the heat was so intense that thirteen men were burned, of whom three died.

After the third explosion, all of the men who were in the mine went to the surface and a consultation was held. A decision was reached that we would let the mine stand until the next morning, and if no other explosion occurred, we would go down again and attempt to seal off the territory in which the fire was located.

The next morning about 7:40 a. m., the fourth explosion occurred.

After the fourth explosion, a consultation was held by those present and it was decided that the only thing that could be done was to seal the top of both shafts, which was accomplished in as short a period of time as possible, and in a manner that was entirely satisfactory.

Respectfully submitted,
Frank Rosbottom,
State Mine Inspector.

February 23, 1917, an explosion of dust in Citizens Coal Company's "A" mine, Springfield, Sangamon County, killed four men. These men were working night shift and about 4 o'clock a. m., went into a room to place a car on the track and to fire three shots that had been left by the shot firers. They completed this work and had gone about 1,000 feet in the entry when the shots exploded, causing the explosion of dust.

February 22, 1918, an explosion of 26 kegs of powder, which had been let down into the mine and allowed to stand on the switch track while the power was on, occurred in the Royal mine of Chicago, Wilmington and Franklin Coal Company, Virden, Macoupin County, which resulted in the death of four men.

June 29, 1918, three men had opened up a sealed section of Mine No. 8, O'Gara Coal Company, Eldorado, Saline County, and were overcome by noxious gases, not having a sufficient amount of oxygen in their helmets, and suffocated.

September 28, 1918, an explosion of gas in Franklin Coal and Coke Company's mine, Royalton, Franklin County, resulted in the death of 21 men. These men were trying to seal a fire, when the gas ignited, killing 20 instantly, and one died 24 hours later.

May 12, 1919, an explosion caused by a windy shot occurred in Marion County Coal Company's mine, Centralia, Marion County, resulting in the death of four shot firers.

June 6, 1919, three men lost their lives in Old Ben Coal Corporation No. 10 mine, Christopher, Franklin County, as a result of an explosion of gas.

February 14, 1921, a gas explosion in No. 8 mine, O'Gara Coal Company, Eldorado, Saline County, killed three men.

February 23, 1921, three shot firers were killed as a result of a windy shot, in Centralia Coal Company's mine, Centralia, Marion County.

February 23, 1921, a fire broke out in the Union Colliery Company's mine, Dowell, Jackson County, resulting in the death of seven men by suffocation.

August 31, 1921, a gas explosion occurred in Harrisburg Colliery Company's Harco mine, Harco, Saline County, in which 12 men lost their lives.

February 21, 1922, three shot firers received injuries, which resulted in death a few days later, from a shot explosion in Springfield District Coal Company's No. 58 mine, Taylorville, Christian County.

September 29, 1922, an explosion occurred in Consolidated Coal Company's Lake Creek mine, which resulted in the death of five men. It was at first thought, and so reported, that this was a powder explosion, but later investigation, based upon new evidence, shows clearly, in the opinion of the State Inspector, that the primary cause was an explosion of gas.

December 6, 1923, three men were drowned in the Radium mine of the Aluminum Ore Company, near Belleville. The machine cut through into an old mine filled with water, allowing the water to rush in with such force that the men had no time to escape.

January 25, 1924, an explosion of gas in Crerar-Clinch Coal Company's McClintock mine, Johnston City, killed 33 men. An investigation made by five State Inspectors of the Department revealed the fact that some men were at work removing track from a section of the mine which had been worked out. These rooms were on a "squeeze" and explosive gas had accumulated. The men removing track were using open lights, when the gas was ignited, resulting in the death of 33 men and much damage to the property.

September 26, 1925, three men were killed by an explosion of gas in Consolidated Coal Company's No. 7 mine, Herrin, Williamson County. The men were working in an entry where the ventilation had become deranged, allowing gas to accumulate, which became ignited in some way unknown.

January 29, 1926, an explosion of gas in C. W. & F. Coal Company's No. 2 mine killed five men. It appears from all the evidence available that these men had been brushing the gas and had stirred it up, when one of them sat down, took his lamp apart and struck a match to relight it, which ignited the gas.

March 30, 1927, eight men lost their lives in an explosion of gas which occurred in the No. 2 mine of the Saline County Coal Corporation, Ledford, Saline County.

December 20, 1927, an explosion of gas in Cosgrove-Meehan Coal Company's No. 1 mine, Johnson City, Williamson County, killed seven men. The cause of the ignition is not known, as all the men in that section of the mine were killed.

EXPLOSION AT PEABODY NO. 18.

By John E. Jones,
Safety Inspector, Old Ben Coal Corp.

On January 9th, 1928, at 7:45 a. m., an explosion occurred in Mine No. 18 of the Industrial Coal Company, West Frankfort, Franklin County, Illinois. Twenty-one lives were lost.

Six hundred seventy men were in the mine at the time of the explosion, ninety-one men escaped from the explosion-affected territory. Eighteen were in the pair of panels where the explosion originated.

This pair of panels was the 3-4 E. off the 14 NE. There were ten rooms on each panel and the entries were stopped inby rooms No. 10. All of the rooms were working. In general, the 4 E. rooms were upgrade and the 3 E. rooms were downgrade. The maximum grade is approximately eight per cent. Rooms 1 to 7 on the 4 E. and 1 to 4 on the 3 E. are nearly finished. Some of these are picked up because of falls.

The mine is of the same gaseousness as the average Franklin County mine. Its ventilation system is of an efficiency that will prevent gas accumulations under normal conditions. In the event of an abnormal condition, such as shorting of an air current through carelessness or accident, sudden gas liberation from squeeze, or any cause, permissible enclosed lights are installed for safety measures.

Enclosed lights are furnished all underground employees for illumination to eliminate the hazard of gas or other combustibles being ignited by naked lights. Mines worked on this system are required by law to have no smoking or smoking material in them. Rock dust was installed out by the section affected late in 1926. The theory of rock dusting is to prevent the propagation of an explosion should one occur; this prevention effect based upon the addition of ash to the coal dust making the resultant mine dust non-propagating of flame.

At best we can only theorize as to the conditions immediately preceding an explosion and the cause of ignition, for usually much of the evidence is destroyed by flame and force. However, there is usually sufficient evidence left to permit the establishment of certain facts and build up a theory as to the cause or causes. It is to be understood, of course, that such theory is only an opinion. This opinion is as follows:

Prior to starting time on this morning, the 13th North door between the 3 East and the 4 East had been left open. This shorted the air that came up the 3-4 East cross entries and directed it in an outby direction along the 13-14 North, taking all of the air away from the inby end of the 13-14 N. and 3-4 East panels. This permitted the accumulation of methane in these workings and especially at the faces of the 13-14 N. and upgrade rooms on the 4 E. panel. One of the first men to reach the open door location would close it, thinking it had recently been left open. The air current would be then directed to ventilate the 13-14 N. and 3-4 East panels as planned. The air velocity, 210 feet per minute, in the 13-14 North would clear these two entries in a few minutes, but the large room areas would cause a much slower air current velocity and permit an increasing methane content for a short time. This rather large body of gas would move slowly through the 4 East panel rooms, through the last entry cross-cut, and into the 3 East panel rooms.

As is usual in rock dusted mines or otherwise high ash mine dust, there was no sudden reaction of the explosion force. This leaves the evidence of forces as that left from the original explosion, and the origin of this is evident in the vicinity of the last rooms on the 3-4 East panel. The greater force and flame of the explosion went through the 4 East panel, feeding upon the methane on this entry and in the rooms. The faces of these rooms show evidence of intense heat, but little or no force, as would be expected from a conflagration of gas flame. The explosion was not extremely violent, the total wreckage being to doors and wood brattices only. Four doors and seventeen brattices were demolished and six brattices were partially blown out.

Coal dust entered into the explosion as long as there was a high methane content. The high ash content, due to previous rock dusting and much fine sand on the haulage and ribs, did not permit propagation in the absence of methane and propagation did not result outby the panels. There was no flame north or south on the 13-14 North nor west on the 3 East but flame was formed onto the 4 East, outby the 13 North, for a distance of 235 feet. Explosion force extended approximately in a radius of 600 feet from the panel entrance. A burning canvas was wrapped about the bottom end of an installed prop and set fire to the prop and loose coal, near the outby end of the flame zone, in old room No. 12. Expansion room also assisted in the cooling and non-propagation of the flame. Rock dust troughs installed at a distance of 425 feet from the 3 East were dumped by the force of explosion, but flame was not within 425 feet of their location. Troughs on the 4 East at a distance of 850 feet from the panels were not dumped. Some of the men had cigarettes and matches on their persons. Cigarettes and matches were found at the location of assumed origin. A mining machine was located 17 feet from the face in room 9 on the 4 East panel and the controller was closed. There was no evidence that ignition was from the electric arc.

Three men lost their lives at a distance of about 1,000 feet from the locality of explosion. They were overcome by the afterdamp. One of these men, Carl Jones, was a former boss at our Mine No. 9. He lost his life in an effort to save others.

Ninety men were safely led out of the interior of the 1-2 East North by a person or persons in a very commendable manner. An error here might have meant many additional deaths from the afterdamp. Fortunately, a door had been blown off its hinges and prevented the forcing of afterdamp into the workings where these men were employed. Three men were brought out of the 13-14 North entry faces by the first rescuers, one man from old room 9 on 3 East outby the 3-4 E. panels and one from the East North parting.

Loss of life, whether singly or collectively, is always a cause for regrets and for sympathy; regrets as to what might have been done, and sympathy for the sufferers and bereaved ones. Yet we feel that some advancement in safety has been accomplished when an explosion of such intense heat and potential violence has not propagated from the panel of its origin. It speaks well of the possibilities of high ash mine dust in the prevention of coal dust explosion propagation.

EXPLOSION AT OLD BEN NO. 8.

By John E. Jones, Safety Inspector,
Old Ben Coal Corporation.

An explosion occurred in Old Ben Coal Corporation Mine No. 8 on the night shift at 2:30 a. m., Sunday, December the first, 1929. Seven men lost their lives instantly. A total of twenty-four men were in the mine, but none of the others were affected, many remaining to assist in possible rescue.

The explosion occurred in the 20 North panel approximately 10,000 feet from the main shaft bottom, in territory that is being worked on the long-face retreating system, locally called slab-work. The flame and nearly all the force were confined to the 20 North panel. The explosion was localized to that panel because of the large room for expansion of explosion force and because of rock dust. Coal dust entered into the explosion, but only in the large areas of the long faces, and not on the entries, where rock dust had been applied.

In the development for the long face method of mining, the inby 600 feet of the 20 North panel, 700 feet in length, was equally divided so that three pairs of wide entries were driven through to the next inby panel, making a solid block of coal 600 feet square, penetrated by three pairs of equidistant entries. These three pairs were the 1 and 2 slab, 3 and 4 slab, and the 5 and 6 slab. Work of retreating was begun in the farthest away corner from the 20th panel entrance, this being the inby end of the 5 and 6 slab entry. The retreating faces were V-shaped and the roof falls were partially controlled by timber and by occasional small pillars of coal. The coal taken is 8 feet in thickness, leaving approximately 20 inches of top coal for roof support against local shale falls. The overlying shale, some 60 to 100 feet in thickness, is a grey compact shale, but quite soft and weak, conforming with the general conditions of this coal field.

Methane gas, in the Franklin County coal field, comes from two general sources. One is from the coal seam itself and found during development and extraction of the coal; the other is from the adjoining strata and remaining coal pillars when the overlying strata break, crushing the timbers and pillars. In the first, adequate ventilation can take care of the most unusual conditions. In the second, adequate ventilation can take care of the normal emission of gas, but when large areas cave quickly, whether in worked-out panels or slabs, such large quantities of methane gas may come with or following the falls, so that the gas may back up against an air current. Sufficient warning of such approaching conditions, locally called squeezes, is given by the cracking sound of crashing pillars. A general practice of getting material out of such localities with minimum loss of time has been developed, care being taken that all men be in a safe location when the crash comes; safe as to the falling of the roof and ribs, and safe as to possible gas ignition.

Retreating work in slab No. 6 was nearly finished to the 20 North entry and roof falls had occurred at somewhat regular intervals. Retreating in No. 3 and 4 slabs was in progress and one fall of roof had occurred. No. 1 and 2 slabs were almost developed, being in readiness for retreat work in the near future.

The last open space in slab No. 6, about 65 feet in length, was being watched at frequent intervals for signs of weight. The night examiner had examined the section four hours prior to the explosion, finding it clear of gas and the roof not working. The assistant night boss examined it two hours later, presumably finding it clear of gas, but finding the roof working. As was the practice, he took men to save the track material and began this work at once, having with him three men. These men were James Tabor, the assistant night boss, Dewey Baker, Jewel Baker and Veto Gardini. There were also two other men, E. E. Beardon and Henry Isaacs, on the 20 N. entry in the vicinity of the 5th slab entrance, whose duty it was to deliver water into barrels for the day operation of the power shovels. One of the regular examiners for the day shift, Thos. McDermott, had come from the west side of the mine, and was in about the center of slab No. 3. Such was the location of the seven men at the time of the explosion.

All of the bodies were badly burned and death must have been almost instantaneous. Violence was not evident on any of the bodies except that of the mine examiner. Six of the bodies were recovered on the same day that the explosion occurred, but the body of the assistant night boss was not recovered until forty-seven hours after the explosion. This body was found twelve feet from the fall edge in slab No. 6, and under about twenty feet of shale. This part of the fall, and probably all of the fall, occurred after the explosion, for the body was burned; and much falling was heard during the advancement for the recovery of the bodies.

There were also three electric locomotives in the section, one on the 20 N. at No. 5 slab entrance, and one in No. 2 slab entrance. Electric power was on the trolley wires, such wires extending along the 20 N. entry, less than 20 feet into slabs No. 5 and 6, 400 feet into slab No. 3, and about the same distance in slabs No. 1 and 2. The wire in slab No. 2 was connected to the wire in slab No. 1 at a point 200 feet inby the slab entrance.

The sequence of events leading to the explosion may never be determined. It has not been established to the satisfaction of all concerned whether the explosion was started from gas or from a box of permissible explosives. This much is certain, that coal dust entered into the explosion, propagating it to include all the longface section, some 500 feet in extent in all directions. The large expansive area and the rock dust localized the explosion to that area.

The explosion-affected territory was not badly wrecked. The mine resumed opeartion on Thursday morning, December 5, 1929.

March 18, 1930, an explosion of gas occurred in Valier Coal Company's mine, at Valier, Franklin County, in which four men lost their lives, two of them instantly, one died the next day and one lived till April 12. The cause of explosion has not been fully determined. The statement of assistant mine manager Thomas Winn is given in full in his own language, and is as follows:

STATEMENT BY ASSISTANT MINE MANAGER.

The explosion happened about 12 o'clock noon, or thereabouts, occurring in the First Southwest Entries, presumably about the West Airway of the First Southwest.

I was at the 11 E. 1 S.W. at the time. My first knowledge was a big gush of wind and dust. I said to Thos. Hart, a machine repairman, "There is an explosion some place." Geo. Farmer, a motorman, came rushing out and said, "Tom, what happened?" I said, "There's been an explosion some place, I will have to go and find out where it's at." I said, "Where is your buddy, Valley Quillman?" Then I heard him say, "Tom, where am I?" I said, "You stay down there till I come and get you," as there was such a roaring we couldn't determine what had happened. At that time, the men came rushing out of the 11th East and they said, "What had happened?" I said, "I don't hardly know yet, but there's been an explosion some place and I got to find out where it's at." I then called to the bottom to cut the power off. I went and pulled the transformer switches and I said, "You fellows stay here till I tell you to go." Seeing that the air was all right on the East Airway and found the door had been blown open, I knew it was in the South. I then 'phoned to the bottom to send in some stretchers and blankets and I started inside. I got several fellows to go in with me and started repairing the curtains and doors where the "brattices" had been blown out, and give orders to the men not to advance ahead of me. At that time, Jack Greenwood, a machine runner, came out. He said, "Tom, I am burned, and burned bad." He said, "I'd like to get to the bottom." I said, "The stretchers and battery motor are coming in and you stay here and you will be taken care of." I left three men at the telephone to take care of the injured. At that time, Dom. Giacoma, trip rider, came running out and said he was burned. So we put him on a stretcher and told the fellows to take care of him and take him to the bottom. I said, "Dom, where is your buddy, Thos. Gleghorn?" He said, "I don't know, I think he is under the motor." So we started inside down the East Airway and found the fellows that worked in the 13-14 East all right. I knew about where the motor was, so we crossed on the entry and we found Thos. Gleghorn in the cross-cut opposite the motor. We then brought him in the fresh air and we gave him artificial respiration and revived him. We left some fellows there taking care of him and we went straight down the East Airway and found Harvey Greenwood in the cross-cut between the East Airway and the First Southwest entry. We brought him back to the fresh air. We gave him artificial respiration and brought him around a little, but that was about all. We left some more fellows to take care of him and we continued on across the entry to the West Airway, but found the canvas blown down. We had to build several temporary stoppings before we could get on the West Airway. By that time, they had the self-rescuers down and Neal Woods, Isaiah Winn and Robt. Elliot got to the face and brought Orin Maclin out to the fresh air, but apparently he was dead. All men being accounted for, we came out and had a crew start building "brattices."

(Signed) THOS. WINN.

NAMES OF MEN KILLED.

Name.	Residence.	Dependents.	Date of death.
Harvey Greenwood	Mulkeytown	Wife and one child	March 18
Oran Maclin	Christopher	Wife and one child	March 18
Jack Greenwood	Christopher	Wife and four children	March 19
Thomas Gleghorn	Valier	Wife	April 12

TABULATION OF MINE DISASTERS WHERE MORE THAN TWO MEN WERE KILLED.

Date.	Name of operator.	Location.	Cause.	Number killed.
Feb. 16, 1883	Wilmington C. M. & Mfg. Co.	Braidwood	Drowning	69
1883	Coulterville Coal Co.	Coulterville	Gas explosion	10
Oct. 13, 1902	Victor Coal Co.	Pawnee	Blast explosion	3
Feb. 25, 1903	Auburn & Alton Coal Co.	Auburn	Blast explosion	3
Mar. 13, 15, 16, 1903	Cardiff Coal Co.	Cardiff	Gas explosion	9
Mar. 23, 1903	Athens Coal Co.	Athens	Blast explosion	6
Mar. 31, 1903	Sandoval Coal Co.	Sandoval	Blast explosion	8
May 11, 1904	Big Muddy Coal & Iron Co.	Herrin	Powder explosion	10
Dec. 9, 1904	Eldorado Coal Co.	Eldorado	Blow-out shot	4
Jan. 16, 1905	Decatur Coal Co.	Decatur	Suffocation, mine fire	6
April 3, 1905	Zeigler Coal Co.	Zeigler	Gas explosion	50
Dec. 22, 1906	Breese-Trenton M. Co.	Breese	Falling cage	6
Jan. 29, 1907	Johnston City & B. M. Coal Co.	Johnston City	Powder explosion	7
Sept. 7, 1907	Dering Coal Co., No. 11	West Frankfort	Gas explosion	4
Oct. 6, 1908	Harrisburg & Southern Coal Co.	Grayson	Powder explosion	3
Nov. 5, 1908	W. P. Rend Coal Co.	Rend	Gas explosion	4
Nov. 19, 1908	Benton Coal Co.	Benton	Gas explosion	3
Dec. 12, 1908	W. P. Rend Coal Co.	Rend	Gas explosion	3
Jan. 10, 1909	Zeigler Coal Co.	Zeigler	Gas explosion	26
Feb. 9, 1909	Zeigler Coal Co.	Zeigler	Gas explosion	3
Feb. 16, 1909	Dering Coal Co., No. 18	West Frankfort	Gas explosion	4
Nov. 13, 1909	St. Paul Coal Co., No. 2	Cherry	Mine fire	256
Dec. 23, 1909	Chicago & Carterville Coal Co.	Herrin	Gas explosion	8
Dec. 27, 1909	Centralia Coal Co.	Centralia	Gas explosion	4
Nov. 11, 1910	Shoal Creek Coal Co.	Panama	Gas explosion	6
Feb. 13, 1911	Saline Co. Coal Co.	Harrisburg	Falling bucket	4
Oct. 23, 1911	O'Gara Coal Co., No. 9	Harrisburg	Suffocated, afterdamp	8
Jan. 15, 1913	Crescent Coal Co.	Peoria	Suffocated, afterdamp	3
Feb. 19, 1913	Eldorado Coal & M. Co.	Eldorado	Gas explosion	4
Oct. 27, 1914	Franklin Coal & Coke Co., No. 1	Royalton	Gas explosion	52
April 5, 1915	Shoal Creek Coal Co.	Panama	Gas explosion	11
July 27, 1915	United Coal Co., No. 1	Christopher	Gas explosion	8
Dec. 8, 1916	Johnston City Coal Co.	Johnston City	Mine fire	3
May 12, 1917	Saline Co. Coal Co., No. 6	Grayson	Gas explosion	4
June 2, 1917	W. P. Rend C. & C. Co.	Herrin	Gas explosion	9
Sept. 17, 1917	C. W. & F. Coal Co.	Orient	Falling cage	5
Nov. 29, 1917	Old Ben Coal Corp., No. 11	Christopher	Gas explosion	17
Dec. 5, 6, 1917	Bell & Zoller Coal Co.	Zeigler	Gas explosion	3
Feb. 23, 1918	Citizens Coal Co. "A"	Springfield	Dust explosion	4
Feb. 22, 1918	C. W. & F. Coal Co. Royal	Virden	Powder explosion	4
June 29, 1918	O'Gara Coal Co., No. 8	Eldorado	Suffocated by gas	3
Sept. 28, 1918	Franklin Coal & Coke Co.	Royalton	Gas explosion	21
May 12, 1919	Marion Co. Coal Co.	Centralia	Gas explosion	4
June 6, 1919	Old Ben Coal Corp., No. 10	Christopher	Gas explosion	3
Feb. 14, 1921	O'Gara Coal Co., No. 8	Eldorado	Gas explosion	3
Feb. 23, 1921	Centralia Coal Co.	Centralia	Windy shot	3
Feb. 23, 1921	Union Coal Co.	Dowell	Mine fire	7
Aug. 31, 1921	Harrisburg Col. Co.	Harco	Gas explosion	12
Feb. 21, 1922	Springfield Dist. C. M. Co., No. 58	Taylorville	Shot explosion	3
Sept. 29, 1922	Consolidated Coal Co. L. C.	Johnston City	Gas explosion	5
Dec. 6, 1923	Aluminum Ore Co.	Belleville	Drowned	3
Jan. 25, 1924	Crerar-Clinch Coal Company	Johnston City	Gas explosion	33
Sept. 26, 1925	Consolidated Coal Co., No. 7	Herrin	Gas explosion	3
Jan. 29, 1926	C. W. & F. Coal Co., No. 2	West Frankfort	Gas explosion	5
Mar. 30, 1927	Saline Co. Coal Corp., No. 2	Ledford	Gas explosion	8
Dec. 20, 1927	Cosgrove-Meehan Coal Co., No. 1	Johnston City	Gas explosion	7
Jan. 9, 1928	Peabody Coal Co., No. 18	West Frankfort	Gas explosion	21
Dec. 1, 1929	Old Ben Coal Corp., No. 8	West Frankfort	Gas explosion	7
Mar. 18, 1930	Valier Coal Co.	Valier	Gas explosion	4

SUMMARY OF DISASTERS BY CAUSES.

Cause.	Number	Number killed.
Drowning	2	72
Fall of cages and buckets	3	15
Gas and dust explosions	36	382
Mine fires	4	272
Powder explosions	11	54
Suffocations	3	14
Total	59	809

SUMMARY OF DISASTERS BY MONTH.

Month.	Number disasters.	Number killed.	Number operators.	Number causes.
January	7	101	7	4
February	12	111	12	9
March	5	35	5	2
April	2	61	2	1
May	3	18	3	2
June	3	15	3	2
July	1	8	1	1
August	1	12	1	1
September	5	38	5	2
October	4	66	4	3
November	5	286	5	2
December	10	48	10	6
Month not given	1	10	1	1
Total	59	809	[a]49	[a]6

[a] Actual number.

CHAPTER V.

STATE EXAMINING BOARD—MINING BOARD—HISTORY OF, ORGANIZATION, AND TIME OF SERVICE, WORK ACCOMPLISHED.

STATE EXAMINING BOARD.

The Thirty-third General Assembly, in 1883, enacted a law providing for an examining board consisting of five members, two coal operators, two practical coal miners, and one mining engineer, appointed by the Bureau of Labor Statistics, to examine all applicants as to their qualifications for State inspectors of mines.

In conformity to this law, the Commissioners of Labor appointed a board of examiners consisting of the following members:

W. H. Emerson, of Fulton County, and John Maule, of St. Clair County, operators; George Neilson, of Sangamon County and John Dixon of La Salle County, miners; and W. S. Cherry of La Salle County, mining engineer. The board met the first Monday in September, 1883, and effected an organization by electing Mr. Emerson as President and Mr. John S. Lord as Secretary. At this session certain general principles were agreed upon to govern in the examination of candidates. Among these were: That examinations should be both written and oral, and uniform for all candidates. That all candidates who presented the required credentials, and who attained a given standard in their examination, should receive the certificate of the board as to their competency and be recommended to the Governor for appointment.

That 100 credit marks should be the maximum, and that 75 the minimum, above which candidates must be rated in order to receive such recommendation.

That the names of candidates should not be inscribed upon their examination papers, nor be known to the board, until after such papers had been considered and rated upon their merits.

Under the provisions of this law the Board of Examiners held two sessions in 1883, one in September and one in October.

At the September meeting 32 candidates for State Inspector of Mines presented themselves for examination. Of this number only four made a record satisfactory to the board and received the necessary credits for recommendation.

Inasmuch as the law required the appointment of five inspectors, it was determined to hold another examination. Public notice was given and the examination held October 9. At this meeting nine candidates came forward, of whom three were successful in passing the test. There were then seven who were qualified and their names sent to the Governor.

The General Assembly, in 1891, enacted a law which provided for the examination of applicants for mine manager by the Board of Examiners and prohibited the employment of anyone as mine manager, in any mine equipped for shipping coal, or any mine whose output might be twenty-five or more tons per day, unless such person had first obtained a certificate of competency, or a certificate of service, from said Board of Examiners.

The law of 1895 provided for the examination of applicants for fire bosses and hoisting engineers, and prohibited, after July 1, 1896, the employment of anyone as such without first obtaining a certificate of competency or service from the Examining Board. Certificates of competency were good at any mine in the State. Certificates of service were valid only at the mines where the persons employed had been in continuous service for one year or more.

In the general revision of the mining laws by the Legislature, in 1899, the State Examining Board was eliminated and a Board to be appointed by the Commissioners of Labor, to be known as the State Mining Board, was provided for. The name "Fire Boss" was changed to Mine Examiner, and provisions made for exchanging certificates of service for certificates of competency. This provision applied to hoisting engineers as well as fire bosses. This law required all mines, regardless of their capacity, to be in charge of certified mine managers, mine examiners and hoisting engineers.

The Board, by resolution passed April 19, 1906, provided for the issuance of mine manager's certificates of the first and second class instead of certificates of competency and service. First class certificates were good at any mine in the State, while the second class was restricted to mines employing less than ten men.

In 1907 the law was amended giving the Governor the power to appoint the State Mining Board. Prior to this time, the appointing power was vested in the Commissioners of Labor. There were no further changes in the law affecting the State Mining Board until the passage, in 1917, of the Civil Administrative Code, consolidating the executive activities of the State under nine departments. All matters pertaining to the mining of coal and other minerals were placed under the Department of Mines and Minerals. Provision was made for a State Mining Board, composed of four members, appointed by the Governor, and the Director of the Department.

The membership and organization of the Examining Board and State Mining Board from 1883 to the present time may be seen in the following lists:

STATE EXAMINING BOARD, MEMBERS AND ORGANIZATION, 1883-1930.

Year appointed.	Member.	Postoffice.	Designation.	Organization.
1883	W. S. Cherry	Streator	Mining engineer	W. H. Emerson, president. John S. Lord, secretary.
1883	John Dixon	Streator	Miner	
1883	John Maule	Belleville	Operator	
1883	George Neilson	Springfield	Miner	
1883	W. H. Emerson	Astoria	Operator	
1884	A. W. Perry	Geneseo	Operator	A. W. Perry, president. John S. Lord, secretary.
1884	Henry Wood	Girard	Operator	
1884	Alex McDonald	Alton	Miner	
1884	John Keay	La Salle	Miner	
1884	W. S. Cherry	Streator	Mining engineer	
1885	J. S. Martin	Sandoval	Operator	J. S. Martin, president. John S. Lord, secretary.
1885	H. E. Hamilton	Fairbury	Operator	
1885	Alex McDonald	Alton	Miner	
1885	John Harper	Colchester	Miner	
1885	Jasper Johnson	La Salle	Mining engineer	
1887	H. H. Beach	Litchfield	Operator	H. H. Beach, president. John S. Lord, secretary.
1887	A. W. Boyden	Sheffield	Operator	
1887	Daniel McLaughlin	Braidwood	Miner	
1887	James Kirby	Barclay	Miner	
1887	Hugh Murray	Ava	Mining engineer	
1889	David Ross	Oglesby	Miner	David Ross, president John S. Lord, secretary.
1889	J. D. Courtney	St. John	Miner	
1889	George C. Simpson	Gillespie	Operator	
1889	William Wilms	Springfield	Operator	
1889	Hugh Murray	Sparta	Mining engineer	
1891	Hugh Murray	Sparta	Mining engineer	Richard Ramsey, president. J. D. Roper, secretary.
1891	Richard Ramsey	Braceville	Operator	
1891	John F. Goalby	Gillespie	Miner	
1891	George C. Simpson	Springfield	Operator	
1891	William Scaife	Coal City	Miner	
1893	Patrick Meehan	Breeds	Operator	Patrick Meehan, president. B. Dishon, secretary.
1893	George Evans	Lincoln	Miner	
1893	William McDonald	Braidwood	Miner	
1893	J. E. Craine	Murphysboro	Mining engineer	
1893	J. M. Browning	Duquoin	Operator	
1895	Louis F. Lumaghi	Collinsville	Operator	J. M. Browning, president. B. Dishon, secretary.
1895	J. M. Browning	Duquoin	Operator	
1895	Wm. McDonald	Braidwood	Miner	
1895	L. A. Graham	Jacksonville	Miner	
1895	J. E. Craine	Murphysboro	Mining engineer	
1897	Richard Ramsey	Braceville	Operator	Richard Ramsey, president. Eben Howells, secretary.
1897	Wm. Cruikshanks	Middlegrove	Operator	
1897	John R. Thomas	Ladd	Miner	
1897	Thomas Haddow	Pana	Miner	
1897	Hugh Murray	Sparta	Mining engineer	
1898	Richard Newsam (1)	Peoria	Operator	Richard Newsam, president. James Taylor, treasurer.
1898	Pat McCann (2)	Lincoln	Miner	
1898	James Taylor (3)	Edwards	Operator	
1899	Richard Newsam	Peoria	Operator	Richard Newsam, president. Pat McCann, vice president. James Taylor, treasurer. Eben Howells, secretary.
1899	James Taylor	Edwards	Operator	
1899	Hugh Murray	Nashville	Mining engineer	
1899	Pat McCann	Lincoln	Miner	
1899	Cochran Johnson	Springvalley	Miner	

Note—In 1899 the Legislature changed the name "State Examining Board" to "State Mining Board."

State Mining Board.

Year appointed.	Member.	Postoffice.	Designation.	Organization.
1901	Richard Newsam	Peoria	Operator	Richard Newsam, president. Wm. Atkinson, vice president. Eben Howells, secretary. Lee Kincaid, treasurer.
1901	William Atkinson	Murphysboro	Miner	
1901	Lee Kincaid	Athens	Operator	
1901	Daniel Reese	Danville	Miner	
1901	Hugh Murray	Nashville	Mining engineer	
1903	Richard Newsam	Peoria	Operator	Richard Newsam, president. Wm. Atkinson, vice president. Eugene A. Pearce, secretary. Lee Kincaid, treasurer.
1903	Lee Kincaid	Athens	Operator	
1903	Wm. Atkinson	Murphysboro	Miner	
1903	Daniel Reese	Danville	Miner	
1903	Andrew Flesher	Taylorville	Hoisting engineer	
1905	Richard Newsam	Peoria	Operator	Richard Newsam, president. Thomas Moses, secretary.
1905	David Christie	Murphysboro	Miner	
1905	Lee Kincaid	Athens	Operator	
1905	Daniel Reese	Danville	Miner	
1905	Andrew Flesher	Taylorville	Hoisting engineer	
1906	Henry Terrill (4)	Colchester	Miner	
1906	Martin Linskey (5)	Streator	Hoisting engineer	
1907	Richard Newsam	Peoria	Operator	Richard Newsam, president. Henry Terrill, vice president. Martin Bolt, secretary.
1907	David Christie	Murphysboro	Miner	
1907	Henry Terrill	Colchester	Miner	
1907	Martin Linskey	Streator	Hoisting engineer	
1908	Matt Davidson (6)	Duquoin	Miner	
1909	Richard Newsam	Peoria	Operator	Richard Newsam, president. Henry Terrill, vice president. Martin Bolt, secretary.
1909	Lee Kincaid	Athens	Operator	
1909	Henry Terrill	Colchester	Miner	
1909	Matt Davidson	Duquoin	Miner	
1909	Martin Linskey	Streator	Hoisting engineer	
1910	Evan D. John (7)	Carbondale	Operator	
1911	Richard Newsam	Peoria	Operator	Richard Newsam, president. Henry Terrill, vice president. S. M. Duggan, secretary. Martin Bolt, chief clerk.
1911	Evan D. John	Carbondale	Operator	
1911	S. M. Duggan	Girard	Miner	
1911	Martin Linskey	Streator	Hoisting engineer	
1911	Wm. Sperry	Canton	Miner	
1913	John Bohlander	Pekin	Operator	John Bohlander, president. James Shaw, secretary. Martin Bolt, chief clerk to Dec., 1914. J. F. Morris, chief clerk.
1913	James Forester	Duquoin	Operator	
1913	James Shaw	Virden	Miner	
1913	Thomas L. Jones	Ladd	Miner	
1913	J. B. McKiernan	Peoria	Hoisting engineer	
1915	John Bohlander	Pekin	Operator	John Bohlander, president. J. F. Morris, chief clerk.
1915	James Forester	Duquoin	Operator	
1915	Thomas L. Jones	Ladd	Miner	
1915	J. B. McKiernan	Peoria	Hoisting engineer	

STATE MINING BOARD

Year appointed.	Member.	Postoffice.	Designation.	Organization.
1917	Evan D. John	Springfield	Director	Evan D. John, director. Martin Bolt, ass't. director.
1917	M. S. Coleman	Harrisburg	Operator	
1917	James Needham	Chicago	Operator	
1917	Wm. Hutton	Duquoin	Miner	
1917	James S. Richards	Belleville	Miner	
1919	Joseph C. Thompson (8)	Springfield	Director	Jos. C. Thompson, director. Martin Bolt, ass't. director.
1919	M. S. Coleman	Harrisburg	Operator	
1919	James Needham	Chicago	Operator	
1919	Wm. Hutton	Duquoin	Miner	
1919	Peter Joyce	Springfield	Miner	
1920	Robert M. Medill (9)	Harrisburg	Director	
1921	Robert M. Medill	Springfield	Director	Robt. M. Medill, director. Martin Bolt, ass't. director.
1921	M. S. Coleman	Harrisburg	Operator	
1921	James Needham	Chicago	Operator	
1921	Wm. Hutton	Duquoin	Miner	
1921	Peter Joyce	Springfield	Miner	
1923	Robert M. Medill	Springfield	Director	Robt. M. Medill, director. Martin Bolt, ass't. director.
1923	M. S. Coleman	Harrisburg	Operator	
1923	James Needham	Chicago	Operator	
1923	F. M. Devlin	West Frankfort	Miner	
1923	Patrick Gillen	Springfield	Miner	
1924	Martin Bolt (11)	Springfield	Director	Martin Bolt, director. A. D. Lewis, ass't. director.
1924	S. E. Redpath (10)	Springfield	Miner	
1924	M. S. Coleman	Harrisburg	Operator	
1924	James Needham	Chicago	Operator	
1924	F. M. Devlin	West Frankfort	Miner	
1926	A. D. Lewis (12)	Springfield	Director	A. D. Lewis, director.
1926	M. S. Coleman	Harrisburg	Operator	
1926	James Needham	Chicago	Operator	
1926	F. M. Devlin	West Frankfort	Miner	
1926	S. E. Redpath	Springfield	Miner	
1928	A. D. Lewis	Springfield	Director	A. D. Lewis, director. Frank Rosbottom, asst. director
1928	M. S. Coleman	Harrisburg	Operator	
1928	Fred S. Pfahler (13)	Gillespie	Operator	
1928	F. M. Devlin	West Frankfort	Miner	
1928	S. E. Redpath	Springfield	Miner	
1930	John G. Millhouse (14)	Springfield	Director	John G. Millhouse, director. Peter Joyce, ass't. director.
1930	Josseph Viano (15)	Coal City	Miner	
1930	Fred S. Pfahler	Gillespie	Operator	
1930	John Mentler (16)	Centralia	Miner	
1930	Paul Weir (17)	Centralia	Operator	

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(1) VICE Richard Ramsey, deceased. (2) VICE Thomas Haddow, resigned. (3) VICE William Cruikshank, resigned. (4) VICE Daniel Reese, resigned. (5) VICE Andrew Flesher, resigned. (6) VICE Daniel Christie, deceased. (7) VICE Lee Kincaid, resigned. (8) VICE Evan John, deceased. (9) VICE Joseph C. Thompson, deceased. (10) VICE Patrick Gillen, resigned. (11) VICE Robert M. Medill, resigned. (12) VICE Martin Bolt, deceased. (13) VICE James Needham, deceased. (14) VICE A. D. Lewis, resigned. (15) VICE S. E. Redpath, resigned. (16) VICE F. M. Devlin, resigned. (17) VICE M. S. Coleman, resigned

In addition to holding examinations, the Board is invested with other important duties, such as, in co-operation with State Mine Inspectors, enforcing all the provisions of the State mining law, hear complaints, and upon sufficient evidence, remove any State mine inspector; to cancel and revoke the certificate of any mine manager, hoisting engineer or mine examiner, if after proper notice and hearing such person is found guilty of misrepresentation of his experience, or of fraud in obtaining his certificate, or has become unworthy to hold said certificate by reason of violation of the law, intemperate habits, incapacity, abuse of authority or for other sufficient cause; to change the boundaries of inspection districts: to grant a permit to operate a second motion engine, at any mine employing not more than ten men, to any person recommended to the Board by the State mine inspector of the district.

A large number of cases have come before the Board for hearing and adjudication. These hearings involved, practically, every phase of the power and duties granted by law, and the Board has been very fortunate in its decisions and no appeal has ever been taken, so far as our records show, from its findings.

During the existence of the State Examining Board and the State Mining Board, a great number of men have been examined as to their qualifications to hold the various positions provided by law and have granted certificates to the following number for each position:

State Inspectors	348
Mine Managers, First Class	3419
Mine Managers, Second Class	2665
Hoisting Engineers, Steam	3014
Hoisting Engineers, Electric	461
Mine Examiners	3880

CHAPTER VI.

MINE INSPECTION SERVICE—LAW CREATING, HISTORY OF, LIST OF INSPECTORS AND DISTRICTS, TIME OF SERVICE, WILLIAM ATKINSON, DUTIES OF INSPECTORS.

Prior to 1870, no law requiring the inspection of mines by an elective or appointive officer had been enacted, and whatever examination or inspection was done was made by an agent or employe of the operator.

The Twenty-seventh General Assembly, in 1871, passed the first law on this subject, making it mandatory on County boards, in every County where coal is mined, to appoint an inspector of mines. These inspectors were to hold their offices for one year and be paid from the County treasury. The powers and duties were somewhat similar to those of State mine inspectors at the present time. These inspectors were to make reports to the County Boards of their respective Counties.

This law proved to be inadequate and unsatisfactory. Some Counties did not accept the responsibilities imposed by the law, and, but few of those which did, made sufficient appropriations to secure an efficient, thorough and scientific examination of the mines as the law contemplated, and as the importance of the industry demanded.

The General Assembly consequently passed an Act, which was approved June 18, 1883, amending the law, so as to provide for State Inspectors of Mines. The leading features of this law may be summarized as follows:

The coal-producing region of the State was divided into five divisions or districts. An inspector, appointed by the Governor and paid by the State, was assigned to each district. All applicants must be examined and their qualifications passed upon, by the Board of Examiners. Each inspector was required to make an annual report to the Bureau of Labor, and, in general, to see that the law was enforced.

The first examination was held at Springfield the first Tuesday in September, 1883, at which, out of 32 candidates, only four received the required rating to entitle them to recommendation for appointment. These were: Walton Rutledge of Alton, Alexander Roland, Streator, James P. Cumming, Braceville, Robert Winning, Carterville.

There being five districts and but four qualified for appointment, it was decided to hold another examination, beginning Tuesday, October 9.

At this session there were nine applicants, three of whom were successful, viz: Thomas Hudson, William Adkinson and Thomas S. Cumming. These names, together with the four who passed at the previous examination, were certified to the Governor as having the requisite qualifications for State Inspector of Mines.

From this list, the following appointments and assignments were made:

Alexander Roland, Inspector, First District.
Thomas Hudson, Inspector, Second District.
James P. Cumming, Inspector, Third District.
Walton Rutledge, Inspector, Fourth District.
Robert Winning, Inspector, Fifth District.

The law of 1883 was amended by Act of the Legislature in 1895, dividing the State into seven districts with an inspector for each district. In 1899, a general revision of the mining law was enacted. This law gave the Board of Labor Commissioners power to change the boundaries of inspection districts, and provided for the necessary traveling expenses of the inspectors.

In 1905, an amendment was enacted providing for the division of the State into ten inspection districts with an inspector in each district.

In 1911, the number of inspection districts was increased to twelve While the boundaries of nearly all districts have been changed, the number at this date remains the same. However, an additional inspector, known as Inspector-at-Large, was provided for in the appropriation made to the Department by the Legislature in 1919, and Richard Neeson was appointed to the position in July of that year.

STATE INSPECTORS.

The personnel of the inspection service and the counties composing the various districts from 1883 to the present time may be found in the following list:

FROM 1883 TO 1895.

Name of inspector.	Year appointed.	District.	Counties.
Alexander Ronald	1883	First	Grundy, Kankakee, La Salle, Livingston, Will.
Quinton Clark	1887		
Thomas S. Cumming	1893		
Thomas Hudson	1883	Second	Bureau, Hancock, Henry, Knox, McDonough, Marshall, Mercer, Rock Island, Schuyler, Stark, Warren.
Edward Fellows	1893		
James P. Cumming	1883	Third	Cass, Fulton, Logan, McLean, Menard, Peoria, Tazewell, Vermilion, Woodford.
John Rollo	1884		
James Freer	1885		
James A. Keating	1893		
Walton Rutledge	1883	Fourth	Bond, Calhoun, Christian, Coles, Edgar, Greene, Jasper, Jersey, Macon, Macoupin, Madison, Morgan, Montgomery, Sangamon, Scott.
John Keay	1893		
Robert Winning	1883	Fifth	Clinton, Gallatin, Jackson, Johnson, Marion, Perry, Randolph, St. Clair, Saline, Washington, Williamson.
James Taylor	1887		
Elisha Beadle	1890		
John G. Massie	1891		
Hugh J. Hughes	1893		

FROM 1895 TO 1905.

Name of inspector.	Year appointed.	District.	Counties.
James A. Keating	1895	First	Grundy, Kankakee, La Salle, Livingston, Will.
Hector McAllister	1897		
Charles Duncan	1895	Second	Bureau, Henry, Marshall, Mercer, Peoria, Putnam, Rock Island, Stark, Woodford.
Thomas Hudson	1897		
Robert Pickett	1895	Third	Brown, Fulton, Hancock, Knox, McDonough, Schuyler, Warren.
John W. Graham	1897		
James Taylor	1901		
Henry E. Malloy	1895	Fourth	Cass, Edgar, Logan, McLean, Macon, Menard, Tazewell, Vermilion.
John E. Williams	1897		
Thomas Weeks	1901		
John Keay	1895	Fifth	Calhoun, Christian, Greene, Jersey, Macoupin, Montgomery, Morgan, Sangamon, Scott, Shelby.
Walton Rutledge	1897		
Thomas S. Cumming	1895	Sixth	Bond, Clinton, Madison, Marion, St. Clair.
John Dunlop	1897		
James B. Bennett	1895	Seventh	Gallatin, Hamilton, Jackson, Jefferson, Johnson, Perry, Randolph, Saline, Washington, White, Williamson.
Evan D. John	1897		

FROM 1905 TO 1911.

Name of inspector.	Year appointed.	District.	Counties.
Hector McAllister	1905	First	Grundy, Kankakee, La Salle, Will.
Thomas Hudson	1901	Second	Bureau, Henry, Knox, Mercer, Rock Island, Warren.
James Taylor	1905	Third	Livingston, Marshall, Peoria, Putnam, Stark, Woodford.
John Dunlop	1907		
Thomas Weeks	1905	Fourth	Fulton, Hancock, McDonough, McLean, Tazewell.
Thomas Hannah	1905	Fifth	Edgar, Macon, Moultrie, Vermilion.
Thomas Moses	1906		
W. S. Burris	1910		
Frank J. Campbell	1905	Sixth	Brown, Cass, Logan, Menard, Morgan, Sangamon, Schuyler.
Thomas Hannah	1906		
James Taylor	1908		
W. W. Williams	1905	Seventh	Calhoun, Christian, Greene, Jersey, Macoupin, Montgomery, Morgan, Scott, Shelby.
Walton Rutledge	1905	Eighth	Bond, Madison, St. Clair.
John Dunlop	1905	Ninth	Clinton, Franklin, Jefferson, Marion, Perry, Randolph, Washington, White.
W. S. Burris	1906		
Oscar Cartlidge	1910		
Thomas Little	1905	Tenth	Gallatin, Jackson, Johnson, Saline, Williamson.

FROM 1911 TO 1917.

Name of inspector.	Year appointed.	District.	Counties.
Hector McAllister	1911	First	Grundy, La Salle, Livingston, Will.
Ben D. Roberts	1913		
Thomas Hudson	1911	Second	Bureau, Henry, Knox, Mercer, Rock Island, Stark, Warren.
Thomas H. Devlin	1913		
John Dunlop	1911	Third	Marshall, Menard, Peoria, Putnam, Tazewell, Woodford.
Patrick Hogan	1913		
George L. Morgan	1914		
James Taylor	1911	Fourth	Cass, Fulton, Hancock, McDonough, Morgan, Schuyler, Scott.
David Z. Thrush	1913		
W. S. Burris	1911	Fifth	Christian, Macon, Moultrie, Shelby, Vermilion.
J. W. Stark	1913		
Thomas P. Back	1911	Sixth	Logan, McLean, Sangamon.
John Garrity	1914		
W. W. Williams	1911	Seventh	Calhoun, Greene, Jersey, Macoupin, Montgomery.
Archibald Frew	1913		
W. L. Morgan	1911	Eighth	Bond, Clinton, Madison, Marion.
John Kaney			
Walton Rutledge	1911	Ninth	St. Clair.
William Hartman	1913		
Thomas Little	1911	Tenth	Jackson, Jefferson, Perry, Randolph, Washington.
John McClintock	1913		
Frank Rosbottom	1911	Eleventh	Franklin, Gallatin, Saline, White.
George L. Morgan	1913		
John E. Jones	1915		
Oscar Cartlidge	1911	Twelfth	Johnson, Williamson.
J. W. Fairbairn	1912		
John Garrity	1913		
James S. Reid	1914		

From 1917 to 1930.

Name of inspector.	Year appointed.	District.	Counties.
Walter A. Waite	1917	First	Bureau, Grundy, Henry, La Salle, Livingston, Mercer, Putnam, Rock Island and Will.
Peter Faletti	1925		
William E. Kidd	1917	Second	McLean, Marshall, Peoria, Stark, Tazewell and Woodford.
Harry C. Hindson	1930		
Thomas P. Back	1917	Third	Adams, Brown, Cass, Fulton, Hancock, Knox, McDonough, Schuyler and Warren.
Robert Reavley	1917	Fourth	Logan (1), Menard, Snagamon and Scott.
Richard Neeson	1918		
Robert F. Back	1919		
Francis J. Devlin	1921		
Thomas Hunter	1924		
Harry Marshall	1930		
Joseph Haskins	1917	Fifth	Christian (2), Edgar, Macon, Moultrie, Shelby (3), and Vermilion.
Thomas English	1924		
Mark Ord	1926		
Fred T. Hodges	1928		
Thomas A. Lewis	1917	Sixth	Greene, Jersey, Macoupin and Montgomery.
John G. Millhouse	1918		
John K. Fraser	1929		
Robert Pettigrew	1917	Seventh	Bond, Madison and Marion.
W. L. Morgan	1918		
Henry D. Thompson	1920		
John White	1930		
Thomas C. Wright	1917	Eighth	Clinton, Monroe and St. Clair.
James R. Richards	1921		
Joseph Thompson	1917	Ninth	Jackson, Perry, Randolph and Washington.
Frank Rosbottom	1918		
Edward S. Flynn	1928		
Frank Rosbottom	1917	Tenth	Franklin and Jefferson.
Joseph C. Thompson	1918		
John O'Rourke	1919		
E. J. Hoey	1922		
James Sneddon	1926		
James Weir	1930		
George Bagwill	1917	Eleventh	Gallatin, Saline, Wabash and White.
Thomas English	1920		
Joseph Haskins	1924		
George Bagwill	1926		
H. T. Banister	1917	Twelfth	Johnson and Williamson.
Henry D. Thompson	1919		
W. L. Morgan	1920		
G. W. Gosnell	1923		
Arthur W. Plumlee	1924		
Richard Neeson	1919		Inspector-at-Large.
Patrick Gillen	1924		Inspector-at-Lagre.
Thomas English	1930		Inspector-at-Lagre.

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(1) Transferred to Second District, 1925.
(2) Transferred to Fourth District, 1926.
(3) Transferred to Sixth District, 1926.

In the list following will be found the name, date of service, and years of service, of the 83 men who have held the position of State Mine Inspector:

State Inspection Service.

LIST OF INSPECTORS, DATE OF APPOINTMENT, AND TIME OF SERVICE.

Name of inspectors.	Date of service.		Reappointed and served.		Years of service.
	From	To	From	To	
Atkinson, William	1904	1906			2
Back, Robert F.	1919	1921			2
Back, Thomas P.	1911	1914	1917	a	17
Bagwill, George	1917	1920	1926	a	8
Bannister, Henry T.	1917	1919			2
Beadle, Elisha	1890	1892			2
Bennett, James B.	1896	1897			1
Burris, W. S.	1905	1913			8
Cartlidge, Oscar	1910	1913			3
Clark, Quinton	1887	1893			6
Cumming, James P.	1883	1887			4
Cumming, Thomas S.	1893	1897			4
Devlin, Francis J.	1921	1923			2
Devlin, Thomas H.	1913	1917			4
Duncan, Charles	1895	1897			2
Dunlop, John	1897	1905	1908	1913	13
English, Thomas	1920	1926			6
Fairbairn, J. W.	1911	1913			2
Faletti, Peter	1925	a			6
Fellows, Edward	1893	1895			2
Flynn, Edward S.	1928	a			3
Fraser, John K.	1929	a			1
Freer, James	1885	1893			8
Frew, Archibald	1913	1917			4
Garrity, John	1914	1917			3
Graham, John W.	1897	1901			4
Hannah, Thomas	1905	1911			6
Hartman, William	1913	1917			4
Haskins, Joseph	1917	1925			8
Hindson, Harry C.	1930	a			1
Hodges, Fred T.	1928	a			3
Hoey, E. J.	1921	1926			5
Hogan, Patrick	1913	1914			1
Hudson, Thomas	1883	1893	1901	1913	22
Hughes, Hugh J.	1893	1895			2
Hunter, Thomas	1923	1930			7
John, Evan D.	1897	1904			7
Jones, John E.	1914	1917			3
Kaney, John	1913	1917			4
Keating, James A.	1893	1897			4
Keay, John	1893	1897			4
Kidd, William E.	1917	1930			13
Lewis, Thomas A.	1917	1918			1
Little, Thomas	1905	1913			8
McAllister, Hector	1897	1913			16
McClintock, John	1913	1917			4
Malloy, Henry E.	1895	1897			2
Marshall, Harry	1930	a			1
Massie, J. G.	1892	1893			1
Millhouse, John G.	1918	1929			11
Morgan, George L.	1913	1917			4
Morgan, W. L.	1911	1913	1918	1924	8
Moses, Thomas	1905	1911			6
Neeson, Richard	1918	1919			1
Ord, Mark	1925	1928			3
O'Rourke, John	1919	1921			2
Pettigrew, Robert	1917	1918			1
Plumlee, Arthur W.	1923	a			8
Prickett, Robert	1895	1897			2
Reavley, Robert	1917	1918			1
Reid, James S.	1913	1917			4
Richards, James R.	1921	a			10
Roberts, Ben D.	1913	1917			4

Name of Inspectors.	Date of service.		Reappointed and served.		of service.
	From	To	From	To	
Ronald, Alexander	1883	1885			2
Rosbottom, Frank	1911	1913	1917	1928	13
Rutledge, Walton	1883	1893	1897	1913	26
Sneddon, James	1926	1930			4
Starks, W. J.	1913	1917			4
Taylor, James	1887	1890	1901	1913	15
Thompson, Henry D.	1919	1930			11
Thompson, Joseph	1917	1919			2
Thrush, David Z.	1913	1917			4
Waite, Walter A.	1917	1925			8
Weeks, Thomas	1901	1911			10
Weir, James	1930	a			1
White, John	1930	a			1
Williams, John E.	1897	1901			4
Williams, W. W.	1905	1913			8
Winning, Robert	1883	1885			2
Wright, Thomas C.	1917	1921			4
Richard Neeson	1919	1924	Inspector-at-large		5
Patrick Gillen	1924	1930	Inspector-at-large		6
Thomas English	1930	a	Inspector-at-large		1

a Still in the service, 1931.

During the 47 years' history of the mine inspection service, but one inspector has lost his life while in the line of duty. This lamentable accident occurred April 3, 1905, at Zeigler.

The following obituary of the Inspector is taken from the Annual Coal Report of 1905, page 342:

> "It becomes our sad duty to chronicle the death of William Atkinson, late State Inspector of Mines for the Seventh Mine Inspection District. Of the dangers to which this class of State servants are exposed, he was the first to lose his life while engaged in the performance of his duty. It was nearly noon, April 3, 1905, when he learned that the coal mine at Zeigler, Illinois, had been wrecked by a great gas explosion and that everyone in the mine had been killed. Hurrying to the place of the disaster, he descended the mine in company with a few other brave men, for the purpose of recovering the dead bodies, and to rescue those whom they hoped might yet be living. While engaged in this most commendable undertaking, he had, in his anxious search, stepped for a moment out of the line of the air current, was seized by the deadly after-damp, and died before his companions could reach him. Deceased was born Feb. 2, 1848, at Alnwick, England, and came to this country in 1862. Shortly after reaching New York he enlisted in the Union Army, joining Company K, New York Volunteer Infantry, and served with distinction until the close of the war. His honorable discharge bears the date of July 18, 1865.
>
> After the close of the war he located at Murphysboro, Illinois, where he continued to reside. He was married to Zerilda Kilgore, at Harrisburg, Illinois, February 16, 1876. Of this union nine children were born, but three of whom are living. Mr. Atkinson was appointed July 1, 1901, by Governor Yates as a member

of the State Board of Mine Examiners. He continued to serve in that capacity until July, 1904, when he succeeded Evan D. John, as State Inspector of Mines for the Seventh District. Prior to his connection with the State Service he had served as mine manager for several coal companies in the Southern part of the State. While deprived in early youth of the advantages of an education, he possessed a bright observing mind, and accumulated a considerable store of information on a variety of subjects. Aside from his experience in the army, before coming to this country, he followed the occupation of a British sailor, and, in the line of that employment, had visited nearly every port in the world. His extensive travels gave him an intimate knowledge of human affairs and quickened his judgment of men. His was the positive type of character, combined with deep sympathy and most generous impulses. His disposition was extremely kind and he was never so happy as when performing a service for others. He was a member of several secret societies, and was buried with Masonic honors at Murphysboro, April 7, 1905. Those who enjoyed his acquaintance will long remember him for his many loving qualities of head and heart."

The office of State Mine Inspector is a very important one and carries with it great responsibilities. The law requires that he inspect every mine in his district at least once in every six months, and oftener if necessary. It requires that he shall investigate and ascertain the cause of every fatal and serious accident occurring in or about the mines and report his findings to the Department of Mines and Minerals. It requires him to recommend to the management the change or abrogation of any conditions detrimental to the health and safety of the employes and that the mines be kept in as safe and sanitary condition as possible. To hear and adjust, if possible, all complaints arising between the management and the men. In fact, more than half the time of these officers is taken up in these various duties, other than inspecting mines.

Meetings are held two or three times a year, at which the Inspectors attend and discuss the problems they meet with in the performance of their duties and the best way to solve them. Without question, much good is derived from these meetings and the service greatly benefitted.

Statistics show that the mines of Illinois, in the ratio of fatalities to production, are the safest of any large coal-producing State in this country or elsewhere, and this is undoubtedly due, in a large measure, to the scientific and careful methods of State Inspectors in the performance of their duties.

CHAPTER VII.

MINERS' EXAMINING BOARD.

LAW CREATING, HISTORY, WORK ACCOMPLISHED.

The first law requiring the examination of coal miners as to their qualifications as such, was passed at a special session of the Legislature in 1908. This law provided that, "In all Counties of this State where the business of coal mining is carried on, a board should be created, to be styled the 'Miners' Examining Board,' consisting of three miners appointed by the Circuit Judge of the judicial district in which such County shall lie."

It was the duty of this board to hold meetings in their respective Counties and examine all applicants as to their qualification as coal miners and issue certificates of competency to those passing the required test.

The law prohibited the employment of anyone as a miner without first having obtained a certificate of competency so to do from the said board, except, that persons who had been employed at least two years in the mines of this State should be entitled to a certificate permitting them to work in the mines as practical miners; also, persons were permitted to be employed to work with, or under the directions of, a miner having such certificate, for the purpose of becoming qualified to receive a certificate.

Each applicant for examination was required to pay a fee of one dollar. Each member of the board was to receive the sum of three dollars and fifty cents per day for his services, together with the necessary expenses incurred in the discharge of his duties. The salary and expenses were to be paid out of the examination fees.

The law of 1909 amended the foregoing by providing that the board should be appointed by the County Judge of the County where the law was applicable, and limited the number of apprentices allowed to each certificated miner to one.

The law as a whole was not satisfactory to those engaged in the industry, and in 1913, was repealed by the enactment of a new law providing for the appointment by the Governor, by and with the advice and consent of the Senate, of three persons as "Miners' Examining Commissioners, who shall constitute the Miners' Examining Board." Each member of the Commission, before taking office, was to be sworn and enter into bond of $5,000 for the faithful performance of his duties. As a prerequisite to appointment, the applicant must have had five years' experience in mining, one year of which must have been continuous in Illinois. The salary of each member was fixed at $1,500.00 per year, payable monthly out of the State treasury.

The law provided for an examination to be held once in each calendar month in at least twelve places in the coal fields of the State, and that all examinations should be in the English language. Each applicant for a certificate of competency was required to pay a fee of $2.00, and to have had at least two years' experience as a miner or with a miner.

In 1915 the law was amended, permitting, until July 1, 1916, the exchange, without cost, of a certificate issued by any board of County mine examiners for a certificate issued by the State board, and after July 1, 1916, no certificate issued by any board other than the State board should be recognized.

The first board under the law of 1913 was appointed by Governor Dunne, soon after the Act became effective, and consisted of Edward Maher of Lincoln, John Knies of Breese and Nicholas Cowell of Springfield. In 1916, C. C. Humphrey of Herrin was appointed to succeed Mr. Cowell and served until July 1, 1917.

The report of this board for the eight months from July 1, 1913 to March 1, 1914, shows that 80 examinations were held and that 4,289 men applied for certificates. Of this number 632 were rejected for various reasons, chief of which was that they could not speak English, there being 379 rejections for this cause.

The second report of this board covers the fiscal year, March 1, 1914—February 28, 1915, and shows that 144 examinations were held, 8069 applicants examined, of which 5615 received certificates and 2454 rejected. Those rejected because they could not speak English numbered 639, and for not having the required experience, 1296. The remainder of the rejections was for insufficient knowledge of the State Mining Law, 334; not knowing the name of the company for which they had previously worked, 183; non-payment of fees, 2.

The third annual report, March 1, 1915—February 29, 1916, gives the number of examinations held, 144; number of applicants examined 6389; certificates issued 4310; number rejected 2079. The reasons for rejecting the 2079 applicants are classified as follows:

Did not know the Mining law	205
Lack of experience	1567
Ignorance of English language	296
Did not know the name of the company formerly worked for	11

The fourth annual report shows 144 examinations and 9213 applicants. Of this number, 1397 were rejected for the reasons given below:

Lack of knowledge of the law	113
Lack of experience	1020
Lack of English	254
Did not know the name of the company where they had previously worked	10

The board issued certificates to 56277 miners in exchange for certificates formerly issued by County boards.

A summary of the work of the board from its creation to July 1, 1917, when its activities came under the jurisdiction of the Department of Mines and Minerals, may be seen in the following tabular statement:

Number of examinations held	512
Number of applicants examined	27960
Number of certificates issued	21398
Number of applicants rejected	6562
Amount of fees collected	$42,796.00
Certificates exchanged	56277
Total number of certificates	77675

The reasons for the rejection of the 6562 applicants are as follows:

Ignorance of the Mining Law	714
Lack of experience	4047
Could not speak English	1568
Could not give name of former employer	229
Refused to pay examination fee	4

The fact that ignorance of the law and of the English language and lack of experience in the work accounts for all but 233 of the rejections, and that those rejected for these causes amounts to more than 22% of the total number applying, speaks well for the wisdom of the law and the faithfulness of its execution.

The elimination of incompetent and ignorant workmen has enhanced the safety of the men in the mines by removing, to some extent, at least, the potential cause of accidents.

The Civil Administrative Code, which became effective July 1, 1917, placed the Miners' Examining Board under the jurisdiction of the Department of Mines and Minerals and Governor Lowden appointed the following named gentlemen as members: William Hall, Springfield; Joseph C. Viano, Coal City; John A. Tuttle, Harrisburg, and W. H. Turner, Collinsville.

In 1920, Mr. Tuttle resigned and was succeeded by William Hogan of Zeigler. Mr. Turner died in March, 1921, and was succeeded by John Mulligan, of Decatur. In 1922, Governor Small appointed Robert Clem in place of William Hogan, resigned. March, 1924, Mr. Viano resigned and was succeeded by Bernard Murphy of Pana. In January, 1928, Matt Kloever of Pana was appointed to succeed Mr. Murphy, deceased.

Early in 1930, Governor Emmerson reorganized the Board by appointing George Hall, Springfield; John Millett, Collinsville; Edward Donahue, West Frankfort; and John F. Oldani, Herrin.

From his appointment, July, 1917, to 1930, Mr. Hall was President and Mr. Tuttle acted as Secretary till 1920, when he resigned and was succeeded in that office by Mr. Mulligan, who served until the reorganization of the Board, when Mr. George Hall was elected President and Mr. Millett, Secretary.

From July 1, 1917, to December 31, 1930, there have been 2045 examinations held by the Miners' Examining Board, at which 94,290 applicants appeared. Of this number 77,443 received certificates and 16,847 were refused for various reasons. A careful analysis of the few reports showing the causes of rejection reveals the fact that they were practically the same, and nearly in the same proportion as were those from 1913 to 1917, and shows that the careful methods pursued in the examinations have been maintained through all these years.

CHAPTER VIII.

MINE RESCUE AND FIRST AID.

LEGISLATION CREATING COMMISSION, ORGANIZATION, RESCUE STATIONS, CHANGES IN PERSONNEL, WORK DONE.

Early in the present century, some foresighted men connected with the coal industry, realizing the hazards to which the underground toiler is subject, and the frequency of disasters in the mines, began agitating the question of establishing a mine rescue unit at the University of Illinois. This agitation, through the influence of the Federal Bureau of Mines and the Geological Department of the University, gained some headway, but it was not until after the Cherry disaster that public sentiment was aroused to the necessity of a law on the subject.

The Cherry disaster gave the opportunity to take advantage of the sentiment and the miners' organization and operators' associations of the State were brought into agreement to support the bill, which was enacted into law at the next session of the Legislature.

Prominent in the promotion of this legislation were:

H. H. Stoek,
Frank De Wolf,
Richard Newsam,
R. Y. Williams,
Lee Kinkaid,
Thomas Moses

and the two organizations mentioned above.

So responsive was the Legislature to public sentiment that, in January, 1910, Senate Bill No. 42 was introduced, passed both Houses, and was approved by the Governor March 4th. The fact that a bill was passed and approved before all the bodies had been recovered, shows the effect of that terrible disaster upon the minds of our people and the responsiveness of our Legislature to public opinion.

This law provided for the establishment of three rescue stations to serve the northern, central and southern coal fields of the State and authorized the Governor to appoint a Commission consisting of seven members to carry out the provisions of the Act.

The Commission was empowered to appoint a manager for the three stations, who, with the advice and consent of the said Commission, was authorized to appoint a superintendent and an assistant for each station.

The rescue stations are intended to serve two distinct purposes.

First—To furnish a trained rescue corps of men to assist at a mine in case of an accident.

Second—To train men in the use of rescue appliances, so that ultimately there shall be at every mine in Illinois a corps of men who can enter a mine with a suitable rescue outfit.

In July, 1910, Governor Deneen appointed as members of the Commission the following:

Representing the United Mine Workers of Illinois:
    Charles Bennett, La Salle,
    Charles Krallman, Glen Carbon.

Representing the mine operators:
    John L. Schmidgell, Murphysboro,
    J. W. Miller, Gillespie.

Representing the mine inspectors:
    Hector McAllister, Streator,

Representing the Federal Bureau of Mines:
    J. A. Holmes, Washington, D. C.

Representing the Mining Department of the University of Illinois:
    Prof. H. H. Stoek, Urbana.

On August 2, 1910, the Commission met in Springfield and effected an organization by electing J. A. Holmes, Chairman, Hector McAllister, vice chairman, and H. H. Stoek, secretary.

September 12, 1910, Richard Newsam was elected manager of the rescue stations, and it was decided that the stations should be erected at the following places:

La Salle for the northern,
Springfield for the central,
Benton for the southern part of the State.

The popularity of the law creating the Mine Rescue Commission and providing for the mine rescue stations is attested by the fact, that, in each instance, the site for the station was donated by the city or by citizens representing the city.

In order to secure suitable men for appointment as superintendents and assistants at the three rescue stations, as provided by the Act creating the Commission, two public examinations were held in Springfield by Mr. Newsam, manager of the stations.

The manager, with the sanction of the Commission, adopted a rule that only those holding an Illinois certificate as mine manager would be eligible for appointment as superintendent of a rescue station, and only those holding an Illinois certificate as mine manager or mine examiner would be eligible to appointment as assistant.

As a result of the examinations, nine men were sent to Urbana, where they were given a preliminary training in the use of oxygen helmets and other rescue apparatus in order to find out if they were suited for rescue work. After taking these preliminary theoretical and practical tests, the manager recommended for appointment, which was made by the Commission, on September 26, the following:

La Salle Station:
    Superintendent, Thomas English, of Streator,
    Assistant, Peter Donnelly, of Streator.

Springfield Station:
    Superintendent, G. H. Walmsley, of Peoria,
    Assistant, Charles Swan, of Danville.

Benton Station:
Superintendent, J. C. Duncan, of Murphysboro,
Assistant, Frank Rosbottom, of Peoria.

These men were then given a two weeks course of lectures and rigorous training in rescue methods at Urbana and sent to the testing station of the U. S. Bureau of Mines at Pittsburgh, Pa., where they were given further training in rescue and first-aid methods and lectures by experts connected with the Pittsburgh station. After spending a week in Pittsburgh, the men returned to Urbana and were given additional training in first-aid to the injured by Dr. M. J. Shields, in charge of the first-aid work of the National Red Cross Society.

While the buildings were being erected, temporary stations were established that rescue equipment might be available in case of accident, and mine rescue cars were provided for.

The Springfield Station was opened in January, 1911, and within four months from that time the other stations were ready.

The following description of the buildings is taken from the report of the Commission December 31, 1910:

DESCRIPTION OF THE STATION BUILDING.

"The station buildings are practically identical in design and construction, and the following description of the Springfield station, will serve also for the other two stations.

The foundations are all of solid concrete, finished smooth on the inside wherever the surface is exposed. The walls of the building are of timber covered on the outside with metal lath coated with two coats of plaster throughout. The extreme dimensions are 61 feet 6 inches in width and 87 feet in depth. The height to the peak of the roof is 29 feet 6 inches.

The front part of the building contains two floors and is divided into the living apartments, office and workshop. The rear portion is one story in height, and contains the rescue chamber.

The basement contains a store room, coal room and furnace room and has a concrete floor and finished concrete walls throughout.

On the first floor at the left of the entrance is the office of the superintendent, in which is a large closet for the storage of maps. Back of the office is a hallway leading to the dining room, which also serves as a general living room. Off this hall is a closet and toilet. Back of the dining room is the kitchen, off which is a commodious pantry and a rear entrance. Back of the front entrance porch a hallway leads to the rescue chamber and on the right is an entrance to an equipment room, which will probably be divided into two parts, one for the storing of equipment and the other will be fitted up as a workshop.

The rescue training chamber and lecture hall occupy the rear of the first floor. The lecture or observation hall is a room 30 feet by 57 feet lighted from above by skylights, but it can be darkened, when desired, by curtains over the skylights. The sides of the lecture hall are of glass, thus goving a full view of the training gallery which surrounds the lecture hall on three sides. The lecture hall will seat comfortably about 100 persons, is well lighted and is provided with a special lighting switch so that a stereopticon can be used for lecture purposes.

The training gallery is an air-tight gas chamber in which sulphur can be burned and in which training with the helmets and other rescue apparatus will be carried on. The right side of the gallery is 8 feet wide and 10 feet 4 inches high, and in this part there will be placed a mine track and a mine car. In the rear an overcast can be constructed, if desired. The left side of the gallery is 6 feet wide and is divided into two parts, one of which is 5 feet 2 inches in height and the other 4 feet 7 inches in height. This division allows work to be carried on in restricted quarters and the upper part can also serve as an overcast. There is a toilet at one end of the rescue chamber.

The second floor contains a dormitory, in which there are twelve white enameled iron beds. A commodious toilet room is fitted with lockers, shower baths, wash bowls and other toilet facilities. There is also a bath room. Three rooms are available for bedrooms for the family of the superintendent, or for other purposes, if they are not so needed. A commodious linen closet and an attic over the front part of the building and over the rescue chamber give ample storage facilities.

The building is well lighted with electricity and thoroughly ventilated by means of numerous well placed windows. It is finished throughout in natural wood stained a dark burnished gray color and presents an excellent appearance."

The three rescue cars were put in commission in March, 1911. Two of these cars, completely furnished and equipped, were donated to the State by the Chicago, Milwaukee and St. Paul Railroad Company and the Northwestern Railroad Company.

In order to protect these cars, a suitable car-barn was built at each station.

In November, 1911, the three mine rescue cars began their tour of the mining towns of the State to give free instructions in helmet work and first-aid to the injured. These cars were in charge of two assistants, and at each place visited, one assistant would give training with the breathing apparatus, while the other one carried on the training in first-aid to the injured. This work usually lasted two weeks at each place, and was sufficient, in most cases, to enable the student to pass the tests and secure a certificate. However, in order to secure the final certificate for helmet work, further training with the breathing apparatus had to be taken at one of the stations.

In 1911 was begun the work of giving free instructions in helmet work and first-aid to the injured. The Commission encouraged first-aid contests, the purchase by coal companies of rescue apparatus and the organization at the mines of first-aid and rescue teams. Soon First-Aid and Rescue Associations were formed for the training of men in several districts of the State.

December 10, 1912, the first competitive contest was held and was participated in by four teams.

October 4, 1910, Mr. J. W. Miller, a member of the Commission, died, and in November, 1911, W. W. Taylor was appointed to fill the vacancy. Mr. Taylor died December 29, and Thomas Moses was appointed as his successor, December 13, 1912. Mr. Moses resigned February 17, 1913. December 1, 1912, Mr. Krollman resigned.

On August 5, 1912, Mr. Richard Newsam, who had served so efficiently as manager of the rescue stations, sent in his resignation because of ill health. The Commission accepted his resignation in the following letter:

"Springfield, August 12, 1912.

"Dear Mr. Newsam:

At a meeting of the Commission held in Springfield, August 8th, your letter of August 5th, containing the resignation as Manager of the Mine Rescue Stations, was presented for consideration.

In accepting this resignation, the Commission wishes to express to you its sincere regret that the condition of your health makes this action necessary, and the hope that you may enjoy a well earned rest after many years of activity.

The Commission also wishes to express its appreciation of the efforts you have put forth in behalf of the rescue work in the State of Illinois.

As members of the Commission, we will always be proud of sharing with you the honor of having had charge of establishment in Illinois of a State rescue service, which is not only the pioneer service of this kind in the United States, but we believe it marks a departure in connection with mining in the United States that will be of great permanent benefit to the coal miners and the coal mining industry.

With best wishes from all the Commission, I remain

Cordially yours,

(Signed) H. H. Stoek, *Secretary*."

The amendment to the Civil Service Act, effective July 1, 1911, placed all employes of the Commission under Civil Service rules. It therefore became necessary to hold an examination for the position of manager to succeed Mr. Newsam. Consequently, an examination was called to be held in Springfield October 3, 1911. Mr. Oscar Cartlidge, State Mine Inspector of Marion was the successful candidate for the position and entered upon the discharge of his duties November 1.

In 1912 the organization of the Commission was as follows:

Hector McAllister, Chairman,
J. L. Schmidgall, Vice Chairman,
H. H. Stoek, Secretary.

STATION STAFF.

Oscar Cartlidge, Manager,
La Salle Station:
    James Towal, Superintendent,
    W. J. McMillan, Assistant.
Springfield Station:
    Thomas English, Superintendent,
Benton Station:
    J. C. Duncan, Superintendent,
    George T. Smith, Assistant.

In 1913, Governor Dunne reorganized the Commission by appointing the following:

Representing the State Inspectors:
    Thomas H. Devlin, Assumption.
Representing the Miners:
    Fernand Bernard, Westville,
    John Slatterly, Toluca.
Representing the operators:
    Stephen Wolschlag, Peoria.
    Thomas Jeremiah, Willisville.
Representing the Department of Mine Engineering:
    H. H. Stoek, Urbana.
Representing the Federal Bureau of Mines:
    J. A. Holmes, Washington, D. C.

Mr. Wolschlag died March 16, 1914, and George H. Deemy, of Peoria, was appointed to fill the vacancy.

The organization of the Commission was effected by electing Thomas H. Devlin, Chairman, H. H. Stoek, Secretary, and Fernand Bernard, Assistant Secretary.

STATION STAFF.

Oscar Cartlidge, Manager,
La Salle Station:
    Alexander Jones, Superintendent,
    W. J. McMillan, Assistant.
Springfield Station:
    Thomas English Superintendent,
    George T. Smith, Assistant.
Benton Station:
    James Towal, Superintendent,
    M. J. Carraher, Assistant.

In 1914, George T. Smith, Assistant at Benton, was transferred to Springfield, and J. W. Maitland of Herrin appointed to the vacancy, but soon resigned, and George L. Morgan was appointed to the position. Mr. Morgan resigned to become State Inspector and M. J. Carraher succeeded him.

Alexander Jones resigned in 1915 from La Salle Station and was succeeded by Thomas Rogers, and Thomas Lawless of Springfield was appointed Assistant at this station to succeed W. J. McMillan, resigned.

August, 1915, Dr. Joseph A. Holmes, member of the Commission representing the Federal Bureau of Mines, died, and Governor Dunne appointed Van H. Manning of Washington, D. C., as his successor.

Following out the idea of having more and better trained men, sub-stations were established in 1914 at Herrin, Harrisburg and Duquoin, in co-operation with the operators and miners at these places. A complete set of rules to govern team training and a plan for keeping a complete record of this training work was approved by the Commission and ordered put into effect. These sub-stations became regular stations in a short time and the one at Harrisburg removed to Eldorado.

Prior to January 1, 1915, certificates had been given to miners on the completion of a course of six lessons in helmet work and passing the test. Experience had demonstrated that this was not sufficient to insure competent and efficient apparatus wearers and the course was lengthened to twelve lessons.

During this time the three mine rescue cars had been traversing the State giving instructions in this work. But, the Commission came to the conclusion that, for various reasons, the project was not achieving its purpose, viz: the permanent organization of local first-aid teams and mine rescue corps, and therefore called in the three cars, and arranged for instructions to be given by instructors who could cover their itinerary more rapidly by regular train.

Realizing that the highest degree of efficiency possible in mine rescue methods can be attained only when each locality has its team of trained miners, the Commission, in November, 1915, directed the Superintendent of each of the sub-stations to select a team of five miners, who should practice mine rescue work not less than two hours each week, and to be paid for such work by the State.

The position of Mine Rescue Station Manager was declared vacant by Governor Dunne, April 1, 1915, on the recommendation of the Commission.

At the close of 1916 there were six teams consisting of five men each, who were well trained in the most approved methods of mine rescue work and ready on call to respond to appeals for help anywhere in the State.

Demonstrations of first-aid and rescue methods were given in different parts of the coal field, participated in competitively by the teams from the various Stations.

Several National contests have been held in which Illinois teams were leading contenders, gaining first prize in some and acquitting themselves creditably in all.

The Commission from the first encouraged first-aid contests, the purchase by individual companies of rescue apparatus, and the organization of first-aid and rescue teams. As a result of this advice and encouragement, there were formed within three years after the organization of the Commission, First-Aid and Rescue Associations in many parts of the State.

By the close of the year 1916, the work fostered by the Mine Rescue Commission was well organized. A team of six men, trained in the most approved methods of mine rescue and first-aid to the injured, at each Station, was ready on call to respond to appeals for help. Many other teams were organized and maintained by companies in different parts of the coal field. Interest in the work was kept to a high degree by competitive contests shared in by the mine management and general public.

By the law of 1917 the Mine Rescue Commission was abolished, the Stations and the administration of the law placed under the jurisdiction of the Department of Mines and Minerals, and called the Division of Mine Rescue and First-Aid. The Superintendents of the various Stations were then appointed as follows:

Thomas Rogers, La Salle,
Thomas English, Springfield,
James Towal, Benton,
James Weir, Herrin,
James Robertson, Duquoin,
Alex Skelton, Harrisburg,

During the next year transfers were made and the Station Superintendents were as follows:

La Salle, Alex Skelton,
Springfield, Thomas English,
Benton, James Weir,
Herrin, Thomas Rogers,
Duquoin, James Robertson,
Harrisburg, James McNabb,

In 1919 Frank Patterson was appointed Superintendent at Harrisburg Station in place of James McNabb, resigned. Thomas English resigned the superintendency of the Springfield Station in 1920 and James Clusker was appointed to this position. In 1922, the Harrisburg Station was removed to Eldorado.

The Fifty-fifth General Assembly, in 1927, passed an Act directing the Department of Mines and Minerals to establish and maintain fire-fighting and mine rescue stations at Belleville, and Johnston City. These stations were open and ready for service by the close of the year. Mr. Fred W. Gramlich was appointed Superintendent at Belleville and Bland D. Stutsman placed in charge at Johnston City. Mr. Gramlich resigned the superintendency of Belleville Station and July 1, 1930, Mr. Ivan Grieve was appointed.

The training of men in mine rescue methods and of women, boys and girls, in the most scientific way of administering first-aid to the injured is carried on at all stations. Enthusiasm in this work seems to be increasing from year to year. Teams are kept in training and ready to respond on call, day or night, anywhere in the State where help is needed. Assistance is not confined to coal mines, but is cheerfully rendered to individuals in any and all cases.

In addition to training at the Stations, the Superintendents and competent instructors will go anywhere in the State where a class of at least twelve ask for it and train teams in helmet work and first-aid. This plan affords opportunity for a great number to receive instruction which otherwise they could not get. This Department is making every possible effort, in co-operation with the parties at interest, to bring about the ideal condition, when every mining locality has its team of trained miners familiar with the inside workings of the mines. In this way only can the highest possible degree of efficiency in mine rescue methods be attained.

The number trained in rescue work and administering first-aid, from 1911 to December 31, 1930, was 50,380. This includes women and boys and girls who took first-aid training only.

During the time the Stations have maintained these trained teams, to the end of 1930, calls for assistance have been responded to for the classes of service shown below:

Mine fires and explosions	167
Exploring work	19
Opening seals	57
Miscellaneous (including individual calls)	39

The result of first-aid work cannot be too highly commended. It not only furnishes trained men, immediately available for rescue work after accidents, but the treatment given the injured prevents unnecessary pain, weakness from loss of blood, wound infection, stiff joints, and sometimes prevents death. It gives stronger patients to the doctors in hospitals and homes and insures a more rapid recovery. It is also a prevention of accidents, as the training given the men tends to make them more careful in their daily work, not only to themselves, but to their fellow workmen. It fosters the feeling that "I am my brother's keeper."

These facts are recognized by the coal companies, who have expended considerable money in equipping rooms for first-aid practice in the vicinity of their mines. At the present time nineteen of these companies have had all the men in their employ trained in first-aid methods. There can be no doubt but what this work has resulted in the reduction of accidents.

Chapter IX.

Division of Economic Investigation.

CREATION OF DIVISION, INVESTIGATORS, INDUSTRIES.

The Civil Administrative Code, passed by the Fiftieth General Assembly, 1917, placed all matters relating to the mineral resources of the State under the Department of Mines and Minerals and conferred upon it the power and duty to inquire into the economic conditions affecting such resources.

Within six months after the Act became effective, a new division was created, known as the Division of Economic Investigation. Mr. James Taylor, of Peoria, was appointed investigator and served until July, 1921, when James E. Anderson, of Farmington, was appointed. Mr. Anderson served to December, 1922, and was succeeded by W. L. Morgan, of Greenville, who has served continuously since.

The various industries coming under the jurisdiction of this division, limestone, oil and gas, sand and gravel, shale and clay, and silica, are found in 80 Counties of the State, and coal is found in 12 other Counties.

The magnitude of Illinois' mineral wealth is evidenced by the fact that, for a number of years, the State ranked sixth in petroleum production; fifth in limestone; fourth in clay products; third in coal and in sand and gravel; and first in fluorspar and in silica. In the total value of mineral products, Illinois is surpassed by only three other States.

A list of the Counties containing one or more of the mineral industries, including coal, is given here:

County.	Industry.
Adams	Coal, limestone, sand and gravel, shale and clay.
Alexander	Sand and gravel, silica.
Bond	Coal, limestone, sand and gravel.
Boone	Limestone, sand and gravel, shale and clay.
Brown	Coal.
Bureau	Coal, limestone, sand and gravel, shale and clay.
Calhoun	Coal.
Carroll	Sand and gravel.
Cass	Coal, sand and gravel.
Christian	Coal, shale and clay.
Clark	Limestone, oil and gas.
Clinton	Coal, oil.
Coles	Oil.
Cook	Limestone, sand and gravel, shale and clay.
Crawford	Oil, gas, sand and gravel.
Cumberland	Oil, gas.
Du Page	Limestone, sand and gravel.
Edgar	Coal, shale and clay.
Edwards	Shale and clay.
Fayette	Sand and gravel, shale and clay.
Franklin	Coal.
Fulton	Coal, shale and clay.
Gallatin	Coal.

County.	Industry.
Greene	Coal, limestone, shale and clay.
Grundy	Coal, shale and clay.
Hamilton	Shale and clay.
Hancock	Coal, oil. sand and gravel.
Hardin	Fluorspar, limestone
Henderson	Sand and gravel.
Henry	Coal, sand and gravel, shale and clay.
Iroquois	Shale and clay.
Jackson	Coal, limestone, oil, gas, shale and clay.
Jefferson	Coal.
Jersey	Coal, limestone, shale and clay.
Jo Daviess	Lead, sand and gravel.
Johnson	Coal, limestone.
Kane	Limestone, sand and gravel, shale and clay.
Kankakee	Limestone, shale and clay.
Kendall	Limestone, sand and gravel.
Knox	Coal, shale and clay.
Lake	Sand and gravel, shale and clay.
La Salle	Coal, limestone, sand and gravel, shale and clay, silica.
Lawrence	Oil, gas, sand and gravel.
Lee	Limestone, sand and gravel, shale and clay.
Livingston	Coal, sand and gravel, shale and clay.
Logan	Coal, sand and gravel.
McDonough	Coal, oil, shale and clay.
McHenry	Sand and gravel.
McLean	Coal.
Macon	Coal, sand and gravel.
Macoupin	Coal, shale and clay
Madison	Coal, limestone, sand and gravel, shale and clay.
Marion	Coal, oil.
Marshall	Coal, sand and gravel, shale and clay.
Massac	Sand and gravel.
Menard	Coal, shale and clay.
Mercer	Coal, shale and clay.
Monroe	Limestone, oil.
Montgomery	Coal, shale and clay.
Morgan	Coal, shale and clay.
Moultrie	Coal.
Ogle	Sand and gravel.
Peoria	Coal, sand and gravel, shale and clay.
Perry	Coal.
Piatt	Coal.
Pike	Coal, sand and gravel.
Pope	Coal, limestone, sand and gravel.
Pulaski	Silica.
Putnam	Sand and gravel.
Randolph	Coal, limestone, sand and gravel.
Richland	Oil and gas, sand and gravel.
Rock Island	Coal, limestone, sand and gravel.
St. Clair	Coal, limestone, oil, sand and gravel, shale and clay.
Saline	Coal, shale and clay.
Sangamon	Coal, shale and clay.
Schuyler	Coal, shale and clay.
Scott	Coal, shale and clay.
Shelby	Coal.
Stark	Coal.
Stephenson	Sand and gravel.
Tazewell	Coal, sand and gravel, shale and clay, silica.
Union	Limestone, shale and clay, silica.
Vermilion	Coal, shale and clay.
Wabash	Coal, oil and gas, sand and gravel.

County.	Industry.
Warren	Coal.
Washington	Coal, shale and clay.
White	Coal, sand and gravel, shale and clay.
Whiteside	Sand and gravel.
Will	Coal, limestone, sand and gravel.
Williamson	Coal, shale and clay.
Winnebago	Limestone, sand and gravel.
Woodford	Coal, shale and clay.

LIMESTONE.

The quarrying of limestone is an important industry and furnishes employment for more than 4,000 men annually. Quarrying limestone is carried on in twenty-five Counties, representing every section of the State.

The leading counties in the production of this mineral are, in the order named, Cook, La Salle, Will, St. Clair, Vermilion, Kankakee, Lee, and Du Page.

Sixty years ago, the uses of limestone were few. It was burned for lime and cement, used in the construction of roads, buildings, and as a flux. The methods of preparing it for use were crude and the process slow.

At the present time, the uses of limestone are many and it now ranks among the foremost of the non-metallic mineral products, being surpassed in value only by coal. It is used principally in making lime and cement, for buildings, construction of roads, for flux in steel furnaces, etc., for railroad ballast, agricultural and many other purposes.

OIL AND GAS.

Oil was known to exist in this State in the early "Sixties." In 1866, the Clark County Petroleum and Mining Company was organized, with its offices at Marshall, Ill. Several holes were put down and a small quantity of oil and gas was found. The company failed, perhaps because of its inability to use proper casing to shut off the salt water, and the development of this immense field was retarded for nearly 40 years.

Oil and gas were found in Montgomery County near Litchfield about the same time as the discovery in Clark County, but, like that field, was left undeveloped.

Some 20 years later, prospecting was renewed in several parts of the State and a number of wells drilled in the vicinity of Litchfield, most of which yielded a small amount of oil for a few years.

In the year 1900, prospecting was renewed and for three years carried on without success.

In 1904, a company was formed and began prospecting in Clark County. The next year, 1905, the first well producing oil in commercial quantities was brought in. Soon other wells were drilled and since 1906, Illinois has been an important contributor to the petroleum supply of the United States.

So rapidly did the wells multiply in the oil fields of the State that in 1908 the peak of production was reached and Illinois furnished 18.87 percent of the total production of the entire country.

At the present time, the five leading Counties in the production of oil are Lawrence, Crawford, Clark, Wabash and Cumberland. Oil is also obtained from Marion, McDonough, Clinton, Monroe, Jackson, Coles, Hancock and St. Clair Counties.

GAS.

The first discovery of natural gas, it appears, was in Montgomery County, at the time of finding oil, as noted above. In 1882, a well producing gas was drilled in this county, and by 1889, about thirty wells producing both oil and gas had been drilled.

Gas was discovered in Pike County in 1886, while drilling a well for water and within two years 30 wells had been brought in, 24 of which yielded gas. In Randolph County gas was found and by 1894, 12 wells were producing this fuel. Several wells producing gas were opened up in Macoupin County in 1909. These wells have all been abandoned and our supply of natural gas at the present time is obtained from oil wells.

SAND AND GRAVEL.

Illinois ranks high, if not in the lead, among the states of the Union in the production of sand and gravel. The value of this product is usually more than $5,000,000 annually. Sand and gravel deposits are found in more than one-half the counties of the State and is mined is commercial quantities in forty, furnishing employment for from one thousand to two thousand men.

The kinds of sand and gravel, indicated by the purpose for which they are used, obtained from one hundred or more pits in operation, are as follows:

Glass sand, molding sand, building sand, paving sand, grinding and polishing sand, fire or furnace sand, engine sand, filter sand and others; building gravel, paving gravel and railroad ballast gravel.

At the present time, the leading counties in the production of sand and gravel are: Producing more than 1,000,000 tons each, McHenry, Cook, Will and Peoria; producing 500,000 but less than 1,000,000 tons each: Kane, Winnebago, Kendall, Tazewell, Ogle and La Salle. The total production of the State ranges, in recent years, from 6,000,000 to 13,000,000 tons.

SHALE AND CLAY.

Shale and clay are mined in 35 or more counties of the State, the number varying from year to year. Since 1919, the output has ranged from one and one-half million to eight million tons. All sections of the State except the extreme northern part are represented, the leading counties being Cook, La Salle, Knox, Madison, St. Clair, Saline, Vermilion and Sangamon. The principal use to which the product is put is in making brick, tile, sewer pipe, flue lining, pottery ware, etc.

SILICA.

This mineral is found in several Counties of the State, but at present is mined in commercial quantities only in Alexander, La Salle, Kendall, and Pulaski. The average annual production of silica is about one and one-half million tons and is used principally in the manufacture of glass, concrete and mortar, in foundry and furnace work and for cutting and grinding stone.

The silica in the southern part of the State is used extensively by the paint manufacturing industry as a filler, especially for outside and preservation paint. It is also used in making metal polishes and as a base for colors.

The following table shows the output of the different industries from the earliest available reports to December 31, 1930. The figures prior to 1920 are taken from the U. S. Government reports; since that time reports have been made to this Department.

Year.	Limestone—tons.	Oil—barrels.	Gas—M. cu. ft.	Sand and gravel—tons.	Shale and Clay—tons.	Silica—tons.
1905	6,161,210	181,084	----------	1,393,012	127,728	----------
1906	4,987,000	4.397,050	409,556	2,419,381	129,724	----------
1907	5,991,026	24,281,973	1,154,344	4,315,275	123,715	----------
1908	5,118,938	33,686,238	4,978,879	6,463,026	117,082	----------
1909	6,942,500	30,898,339	8,472,860	8,930,848	144,060	----------
1910	6,521,610	33,143,362	6,723,286	8,317,854	188,803	----------
1911	5,825,384	31,317,038	6,762,361	8,236,776	182,836	----------
1912	6,520,000	28,601,308	5,003,368	6,634,434	176,558	----------
1913	6,741,265	23,893,899	4,767,128	7,641,911	194,937	----------
1914	4,690,721	21.919,749	3,547,841	4,356,579	161,034	----------
1915	4,773,505	19,041,695	2,690,593	7,141,884	163,904	----------
1916	5,512,707	17,714,238	3,533,701	7,877,793	197,701	----------
1917	4,555,200	15,776,860	4,439,016	9,120,698	195,693	----------
1918	3,106,363	15,365,974	4,473,018	6,355,406	109,182	----------
1919	6,638,290	7,677,765	994,241	3,639,177	1,547,189	----------
1920	5,381,942	8,777,761	1,021,406	3,254,173	1,957,918	759,867
1921	5,972,952	6,850,837	1,388,112	2,729,456	1,670,238	773,324
1922	5,425,398	5,890,136	1,225,095	2,742,007	1,854,149	448,882
1923	5,962,469	6,116,943	1,551,394	3,851,004	2,159,717	1,763,352
1924	7,275,647	6,368,024	2,463,401	5,905,436	4,503,296	1,134,384
1925	12,557,412	10,506,387	5,101,459	10,287,951	7,184,268	1,825,884
1926	13,717,636	6,124,231	149,947	10,548,500	4,364,228	1,404.187
1927	13,006,804	5,758,554	313,498	10,651,242	4,371,672	1,807,133
1928	12,284,256	5,225,515	1,973,159	13,719.242	3,855,843	1,601,944
1929	11,203,531	4,567,272	3,197,828	9,813,658	8,623,522	2,324,768
1930	6.875.473	4,681.805	1,660,537	11,263,437	1,956,395	1,514.266

CHAPTER X.

DIVISION OF METAL MINES INSPECTION.

DIVISION CREATED, JURISDICTION, WORK DONE.

The law of 1917 conferred upon the Department of Mines and Minerals the power and duty "To make inquiry into the economic conditions affecting the mining, quarrying, metallurgical, clay, oil and other mineral industries."

On June 29, 1921, Governor Small approved an Act, which became effective on January 1, 1922, providing for the inspection of mineral mines and defining the term "mineral" to mean, when used in this Act, "Whatever is recognized by the standard authorities as mineral, whether metaliferous or non-metaliferous, but shall not be held to embrace or include coal, lignite, gas, oil, or any substance extracted in solution or in molten state through bore holes."

The office of inspector was created and the Governor, by and with the consent of the Senate, was empowered to appoint the inspector for a term of four years. The office of "Inspector of Mines" was placed under the jurisdiction of the Department of Mines and Minerals. Strict provisions were made for the inspection of the mines, looking to the betterment of working conditions, preservation of the property and the making of annual reports. Mr. Edward S. Smith was appointed inspector soon after the law became operative and is still serving in that capacity.

The work of the inspector is confined, practically, to the fluorspar mines in the southeast part of the State and to the lead and zinc mines in Jo Daviess County.

Prior to 1919 no reports were made to any department of the State government of the operation of these mines, and we are dependent upon outside sources for information. From these we learn the fluorspar has been mined in this State continuously since 1880, and at intervals for 40 years prior to that time.

According to "Mineral Resources of the United States, 1925," fluorspar was discovered in Illinois in 1839, but no mining was attempted till about 1842, when it was found near the present site of Rosiclare, in Hardin County, and development begun. Mining was carried on in a very limited way, as the demand for this commodity was restricted to uses in the preparation of hydroflouric acid and in the manufacture of glass. It was not till 1880 that a record was kept of the annual production, and only an estimate of the total from the first to 1880, can be given, which is placed at 20,000 tons.

From 1880 to 1901, 119,400 tons of this metal were produced. About 1900, the advantage of fluorspar over limestone as a flux in basic open-hearth steel plants was generally recognized, and this widened market resulted in greatly increased production. The steel industry alone consumes about 80% of the product.

Illinois has supplied, according to the best figures available, at least 65% of the total production of the United States, practically all of it from Hardin County.

In addition to its use in the steel industry, fluorspar is used extensively in the manufacture of enameled and sanitary ware, opalescent glass, facing for bricks, and in the manufacture of hydrofluoric acid, and as a flux in iron and brass furnaces, and in smelting of gold, silver and copper.

The total output of fluorspar in Illinois, from the first production to December 31, 1930, is estimated at 2,056,231 short tons, valued at $27,612,121.00.

LEAD AND ZINC.

Nearly all the lead and zinc produced in Illinois is mined in two or three mines near Galena, Jo Daviess County, only a few tons being recovered from the fluorspar mines of Hardin County.

The State's production of these minerals is small when compared to the total produced in the United States.

The following table gives the production in tons by years from 1919 to 1930, and is taken from annual reports to this Department.

Year.	Fluorspar.	Lead.	Zinc.
1919	175,689	11,063	17,570
1920	178,515	11,208	17,852
1921	132,369	8,072	13,238
1922	88,173	10,025	8,300
1923	89,236	2,075	6,440
1924	52,258	2,164	8,309
1925	75,250	1,001	8,724
1926	75,798	859	12,561
1927	73,440	426	1,778
1928	98,069	535	------------
1929	77,555	708	------------
1930	66,014	392	------------

CHAPTER XI.

APPENDIX A, WALTON RUTLEDGE.

APPENDIX B, THE CHERRY MINE DISASTER,

APPENDIX C, A PECULIAR TRAGEDY OF 1880.

Walton Rutledge, known as the father of the mining laws of Illinois, was born at Haswell, County of Durham, England, in 1835.

He began working in the coal mines of his native county at the age of fourteen years, and, after about one year, was transferred to the surveying division, working with the mine examiner a part of the time. He came to the United States in 1854, locating in the anthracite coal region, where he worked as a miner for two years. In 1856 he came to Illinois and settled at Alton. Here he worked in the mines until May, 1864, when he enlisted in Company D, 133d Regiment, Illinois Infantry. Afterward, during this year, he raised a company of volunteers which was mustered into the service as a part of the 144th Regiment, and served as First Lieutenant to the close of the war.

At the close of the war, Mr. Rutledge returned to Alton and went to work in the mines. About this time, he was chosen as secretary of the Miners' Benevolent Association and served for two years. He was elected County Surveyor of St. Clair County in 1874 and held that office for ten years.

Mr. Rutledge was active in securing a clause in the Constitution providing for mining legislation, and later served on committees of miners to formulate a mining law for the State. He was finally successful, and the law of 1883 bears the impress of his knowledge and untiring zeal in behalf of the industry in which nearly his whole life was spent.

In 1883, after the new law became effective, Mr. Rutledge was appointed State Inspector and served until 1893. He was again appointed in 1897, serving until 1913, when he retired to private life. He quietly passed away at his home in Alton, June 17, 1922.

APPENDIX B.

THE CHERRY MINE DISASTER.

From the Report Issued by the State Board of Commissioners of Labor —David Ross, Secretary.

The appalling loss of life caused by the fire in the coal mine at Cherry, Ill., calls for something more than a mere recital of the number and names of those who perished. Experience prepares us to expect death at any moment in the mines. Its dangers are so obvious, and seemingly inevitable, that the results in dead and disabled can be figured almost with mathematical precision. Our casualty lists, extending back as far as we have any authentic history of the mine industry, attest the awful toll in life and limb inexorably exacted as a penalty which those who pursue such employment must sooner or later pay. Here at least is one sphere where the rules of immunity have no application. The record shows that with every so many tons of coal, there is lifted to the sunlight the bruised or lifeless bodies of men.

We have in a sense become accustomed to the annual loss of hundreds of mine workers distributed quite uniformly through the working days of the year, lives that are separately but regularly offered as a sacrifice to the demands of the industry, and the slaughter proceeds without exciting any special public comment. Comparatively, it is the great things that impress us, the extraordinary events that compel attention, and the extinction of two hundred and fifty-nine lives in a single accident constitutes a calamity unprecedented in the annals of mining in this State, fully justifying a report, giving somewhat in detail the cause and consequences of the catastrophe; the manner in which a sympathetic public rose to meet the necessities of a suddenly stricken people, and the commendable attitude of the St. Paul Coal Company, as evidenced by the money settlement it has made with the members of the bereaved families or their representatives.

In order to fully understand the conditions under which the fire originated, it is necessary to know the general plan on which the mine was being operated. A first seam was struck, which was not operated. Two seams of coal were being mined, the second at a distance of 320 feet from the surface, the third or lower seam at a depth of 485 feet. The lower seam was in process of development. Substantially all the coal mined from the time the shaft was sunk until the day of the disaster had been taken from the second level. While the main hoisting shaft extended to the bottom vein, the cages in that shaft did not descend below the second level. All material intended for use in the bottom vein was lowered in the main shaft to the bottom of the second level and from there transferred to the escapement shaft where, by a separate engine operated from the surface, it was lowered to the bottom seam. So also in the matter of coal or other material hoisted from the bottom seam, the escapement shaft was used to bring them up to the second seam, where they were transferred to the bottom of the main second level, and from there hoisted in the main shaft to the surface.

Immediately after dinner on the 13th day of November, 1909, a car loaded with baled hay, intended for use of the mules in the lower seam, was let down the main shaft.

Upon reaching the landing of the second seam, which was the destination of the cages in the main shaft, the car and its contents was taken off, transferred by means of a runabout and started in the narrow passageway leading to the airshaft, from which point, in accordance with the practice, it was to be sent to the seam below. A like operation had been performed successfully on all other occasions, but on this one it failed. Fate, utilizing all the agencies of human frailty, was evidently busy arranging the scenes for a great tragedy, and circumstances, seemingly simple in themselves, combined to create a situation involving the imprisonment and ultimate death of more men than ever before occurred at one time in the history of the State.

Associated with all great calamities are some simple, curious, or mysterious causes. The burning of baled hay, the initial cause of the Cherry disaster, has never been fully explained or clearly understood. Under ordinary circumstances, compressed hay will not burn. It has been the practice in some mines to construct stable partitions of that material, and, in instances where stable fires occurred, everything combustible except the partitions was consumed. It has frequently been exposed to intense fire and heat, with the result that only the broken ends on the surface were scorched and blackened.

The facts, as developed by the testimony in this case, are that the car containing the six bales of compressed hay, in its journey to the air shaft, had stopped immediately at the side of, or directly under, one of the burning torches temporarily used to illuminate that portion of the underground workings. Its detention at that point was of short duration, but long enough to permit the hay to catch fire, a condition that some suppose was made possible by its becoming saturated with oil dripping from the lighted torch. Open lights in the connecting passageways and about the shaft bottoms had been used for several weeks prior to the fire. Before that time electric lights were employed. Some delay was experienced in filling the order to replace the destroyed electrical wiring, the new supply having reached the mine on the morning of the fatal day.

From the moment the burning hay was discovered, until the car containing it was finally dumped down the airshaft, not to exceed thirty minutes elapsed, during which time the cagers, Alex Rosenjack and his assistant, Robert Dean, and the others who aided, acted like men who had confidence in their power to control the situation. That the feeling existed that there was no real danger from the fire and that it could be extinguished without peril to life is indicated by the testimony of men who, in passing it on their way to the surface, stated they could have put it out easily with their coats. One of them, when asked why he did not do so, said he had an important engagement in Peru and that he must take the 1:30 cage; otherwise he would have to remain in the mine until the next cage for men at 3:30 p. m. In the meantime, the struggle with the new agency of death in the mine continued until the fire fiend closed the last avenue of escape and the country was startled with a report of the greatest mine horror of modern times.

THE FATAL DAY.

On the date of the accident there were 481 men employed, including all occupations, diggers, driver, company men, trappers, spraggers, etc.

The men entered the mine from 6:30 to 7:00 o'clock in the morning and there was a cage run, mid-forenoon, noon and 1:30, at which time those who discontinued work at that hour might be brought up. The regular hour for discontinuing work was 3:30 p. m. About 3 p. m. the diggers were permitted to fire their shots. There were no shotfirers in this mine because there was usually less than two pounds of powder used for a charge.

On the 13th of November, there were several men who discontinued work in time to catch the 1:30 cage, and this, in a measure, accounts for the fact that there were only 259 lives lost.

Between 12 and 1 o'clock p. m., on the fatal day, six bales of hay, standing upright, were placed in a coal car, which was of the average size of cars—that is—6 feet long and 3 feet wide, and were to be taken to the third vein mule stables. There were from sixty to seventy mules in the second and third veins. The hay was taken down on an average of once every twenty-four hours. The car in this instance was lowered from the tipple to the second vein and there it was drawn by mules, in charge of Charles Thorne, through the east runaround and up the main passageway over the switch immediately southeast of the third vein shaft or escape shaft. It was left there by Thorne, who hitched his mules to some loaded cars and started on his run to the main bottom.

Robert Deans, the assistant cager, with Matt Francesco, pushed the car some distance up toward the shaft and right close to the torch which was hanging upon a timber near the bottom at the escape shaft.

The electrical equipment of the mine had been out of use for a month, which resulted from the short circuiting of the main cables due to being water soaked. The torches, which had been placed at the main bottom and also at the escape shaft, were constructed of pipe about 2 inches in diameter, 12 to 16 inches long, with a cap on one end and a reducer on the other, in which a cotton wicking was placed. The torches were filled by the cagers with kerosene, and were attached with pieces of wire to the timbers. The wire was around the center of the pipe so that the torch would hang horizontally, the burning end would be lowered as the oil was consumed, so the oil would run down upon and against the wick. Frequently, the oil would seep through the end where the wick was inserted and drop. The torch near which the car and hay were moved hung so low that the lower end of the blaze was from 5 to 8 inches below the highest part of the baled hay. After pushing the car to this point, Francesco and Deans left that place and went to the other track and coupled some loaded cars, after which they discovered that the hay was on fire, which was about 1:25 p. m.

The air current at this point was fanning the fire into a blaze and Rosenjack and Deans then started to push the car northwest through the main air course to the sump near the mule stable, intending to get water from that sump and to put out the fire. Upon being unable to push the car to the sump, Rosenjack and Hanney, who had just come up from the third vein, on his way home, and when Rosenjack called upon for help, got in the back of the car and attempted to push it towards the third vein shaft. The air passing through the main air course fanned the flames into considerable proportions and the pine timbering, which was used generally in this mine, in the main air course, caught fire.

Albert Buckle, a boy of fifteen, Francesco and others, were told to get their pails and go around to the main bottom and get some water.

In the meantime, Rosenjack communicated with William Smith, the cager at the third vein bottom, and told him they had a car of hay on fire, and that he, Rosenjack, wished to send it down to the third vein and inquired if they could take care of it. Smith responded, "Let her come." Rosenjack requested Vickers and Theo. Dehesse to put the car of burning hay upon the cage and that he, Rosenjack, would go down to the third vein and assist in putting it out. The car was drawn partly upon the cage, but the heat was so intense that the car was not accessible and the drivers and others assisting were only able to push the car a short distance upon the cage.

In the meantime Rosenjack had come up from the third vein and as the woodwork at the side of the cage was on fire, he signaled to hoist the cage, which was raised four feet, the car and hay falling under the cage down into the third vein sump. Here Smith and Norberg were stationed and they attached the hose which was used at the mule stable in the third vein and put the fire out. This was about 1:48 p. m. Some of the miners who had notice that the air was bad and that there was smoke in it, left their rooms and came to the third vein bottom. They signalled for the cage and received no response and went up the stairs. Probably the last who came up from that vein was William Maxwell and his son. When they reached the third vein a man was ahead of Maxwell. He lifted the trap door and the smoke and flames were so intense that he said they could not get through. Maxwell, an old man, said "We must," and he crept through with his son and went through the east runabout and was finally pulled on the main hoisting cage and brought to the top insensible.

During this time several signals were given to stop and reverse the fan, etc. The fan was first stopped, then reversed, then stopped and then drawn in its usual course, then reversed until the flames which were drawn up the escape shaft burned out the doors and disabled the fan.

When the fan was reversed it drew the flames up through the escape shaft from the second vein to the surface and cut off all means of escape from the third to the second vein through the third vein hoisting shaft or the stairway.

At about 1:40 o'clock the last signal was received by the third vein engineer for hoisting the cage to the second vein. The probabilities are that whoever took the cage at that time were burned to death upon reaching the second level and there was no signal after that.

In the meantime the fire had been noticed by the cagers on the main bottom, but before referring to this, the attention of the reader should be called to the fact that for months there was no appliance for hoisting men from the third vein to the second vein through the main shaft. There was a bucket there which was attached to a rope, which in turn could be attached to one of the main cages. Two or three weeks before the date of the accident, a small cage had been constructed to take the place of the bucket. But this cage was not available. A rope was attached to this cage which was hanging on some cleats or a projection near the main bottom. This hook could be attached or hooked on the cage, and thus raised from the third vein to within about 10 or 15 feet of the second vein bottom. Most all of the miners working in the third vein were not familiar with the fact that there had been any change in the construction or method of escape through the main shaft. Hanney, who was president of the local union, a man of more than average ability, did not know that such a change had taken place and was under the impression at the time of the accident that the bucket was still the only thing that could by any possible means be used for hoisting purposes from the third to the second vein in the main shaft.

The small cage that had been constructed to be operated in case of emergency from the third to the second vein was of small dimensions and it was smaller that the compartment in which it was to operate, and when it was drawn up the distance between the side of the cage and the bunting or the side of the shaft was covered with planks which formed a platform. From this platform there was a ladder about 8 or 10 feet long which led to the bottom of the second vein. When this cage was used by the rescuers after the fire it stuck in the shaft and the rescuers were obliged to climb on top of the cage and then climb up 10 feet to the landing. The persons using this method were then obliged to come up through the opening left by a main cage when it was hoisted and could not get up when the cage was down on either of the respective sides where the cage rested unless they could crawl through the space between the two compartments occupied by these cages, which was about 8 to 12 inches in breadth.

At about 1:30 p. m., some miners became aware of the existence of the fire. The trapper boys came to the main bottom and asked to be permitted to go up. The cager at first refused, stating that they would get the fire out and commence to work again. Later, he sent them up.

AT THE MAIN BOTTOM.

The cagers at the main bottom were among the first at the main shaft who became aware of the existence of the fire. They continued to hoist coal for some five or ten minutes after they knew the fire was in existence, evidently under the belief that it would be put out. When the serious nature of it became apparent, several of the drivers and company men endeavored to give notice to the diggers, although the fire had burned for at least forty-five minutes to an hour before any such attempt was systematically made. The trapper boys near the main cage were taken up early and the cages were then continuously operated for the purpose of taking the men up from the main bottom.

During the fire there was an attempt made to get into the mule barn, which had been filled with smoke and flames, to attach a hose, but the heat and smoke prevented; this hose was brought down from the surface. Being unable to get into the mule barn, they made an attempt to attach it to a nozzle or piece of water-pipe near the main cage. The pipe was too small, the water was hot and the hose could not be held around or against the opening of the pipe.

Whether the cage at the third vein bottom was ever attached to the main cage does not appear very certain from the evidence taken. It is certain, however, that if it was, it was immediately detached, for there is no evidence that the cage was used, that a rope was attached, or that any attempt was made to hoist the men from the third vein by using the third vein cage in the main shaft, which some have called the "emergency cage."

TWELVE HEROES.

The condition of the main bottom at 3:30 or 4:00 o'clock was such as to indicate that all possibility of escape was rapidly disappearing. The flames were very intense. At about this time the cage was lowered with twelve men on it and word was left on top that the engineer should pay strict attention to signals. The signals he received were as follows: Three bells (meaning to hoist); four bells (meaning hoist slowly); then four bells (meaning to hoist slower); then signals to lower, and no more signals were received. About fifteen minutes after that the rope was seen to shake. The engineer, after long and repeated pleading and begging on the part of many of the men, hoisted the cage, and the rescuers were found, some in the cage and others on top of it, all dead. It happened that one who was rescued seven days after the mine was closed tells that he reached the shaft and found no cage there and using his cap to protect his hand, tried to signal for the cage to come down; that in a measure accounts for the confusion of signals received by the engineer.

This was one of the most unfortunate incidents in the history of this disaster. Here were twelve brave men who were willing to risk, and, as it were, sacrifice their own lives in an attempt to save their fellow-townsmen from their peril in the mine.

The names of these men should go down in history as heroes in the time of the darkest tragedy that has occurred in the industrial field of this State. They had volunteered to go down into the mine, expecting to be able to notify the miners and aid them in their escape, but they were too late. They were not all miners. Their names and occupations are as follows:

John Bundy, mine manager; Andrew McLuckie, miner: Harry Stewart, miner; James Spiers, miner; Mike Suhe, miner; Robert Clark, miner; Alexander Norberg, assistant mine manager; Isaac Lewis, liveryman; Dominic Dormento, grocer; John Flood, clothier; John Sczabrinski (Smith), cager; Joseph Robesa, driver.

This was the seventh time that the cages were lowered with rescuers upon it after the seriousness of the fire was realized, and each time they had succeeded in bringing up some men alive; each time those who ventured down encountered the smoke and came up almost asphyxiated. The fire was getting nearer and nearer the main hoisting shaft; but this last cage of men were doomed to meet their fate in a supreme effort. When the cage was raised eight of them lay on the floor of the cage. Their clothing was still blazing and their arms and hands were in convulsive postures, just as death had seized them, and when they had tried to protect their faces from the awful heat. Four of the bodies were lying across the top of the cage where they died in a frantic effort to climb away from the fire.

When they were hoisted to the surface it was a most pitiful sight. The relatives of these men were there and the scene witnessed was the most heartrending. Strong hearted men broke down. After all, the story of the twelve martyrs is but a phase of the great disaster.

The time that elapsed from the beginning of the fire until the last person came out shows that if there had been some system of notifying the men at work in the mine, they could all have gotten out. Or if the serious danger had been realized in time by the cagers and others at the hoisting shaft, the men could have been notified by messenger, as some were who escaped and whose stories we here publish.

We have selected from the testimony of those who were in the mine at the time of the fire and made their escape, and have transformed this testimony into a story or narrative, using their own words. Space will not permit us to give the account of all of them, as the testimony comprises nearly 900 pages, but we will give those which we think will best enable the reader to understand the conditions on that fateful day. Many others would be interesting, however.

THE STORY AS TOLD BY THE MINERS.

The first is that told by James Hanney, who was president of the local union, and who testified that he was 56 years of age, born in Scotland, and commenced to work in the Cherry mine a year ago last June. He had worked in different kinds of mines before this one, and had worked in the third vein about a year. He says: "We were coming from the third vein and started through the main air course in the third vein. We had to hurry to get to the big shaft to get up at half past one. The shortest route is about 200 feet through the main air course. At the second vein we saw the car of hay on fire and the cager asked us to give him a hand to shove the car back. We gave him a hand and shoved the car back as far as we could stand it, about ten or fifteen yards, and then the heat and smoke were so bad we could not stand it any more, and I went out to get assistance to stop the fire. Nothing was said about notifying the men, for no boss was around. Someone had to get assistance and I went to get it. The cager let us go up because it was time. We took the cage to the top. When I first saw the flames they were probably 5 or 6 yards long. There was a great current of air in the main entry or air course, and the fire was reaching out to the shaft to where the barns were situated, toward the main shaft. Upon reaching the top, I told the boss there was a fire down there and to stop the fan and the fan was stopped. It was about 4:00 o'clock when they covered the main shaft on the surface, and I don't know why they didn't cover the escape shaft, but I think the people would not permit it. The superintendent said, 'If I ordered the escape shaft covered, the people in town would kill me.' I worked in the third vein since it opened—that is a year ago last August. There is no fire equipment there; none was ever pointed out. The doors and the entries there are about 5 x 5, and are timbered with white pine."

William Vickers testified that he lived in Cherry four years, was married, and entered the mine on the 13th at about twenty minutes to seven. "Had worked in the third vein since 1908 and was working in Room No. 1 in the Southeast with his 'buddie.' At about twenty-five minutes to three he heard of the fire and heard hollering at the switch to 'Come out,' that there was a fire in the second vein, and he says I hollered into the straight East, 'Come out right away; the shaft is on fire!' The men were Italians, and did not understand English well. They said: 'What's the matter?' and I said, 'The shaft is afire; get out!' and one of the fellows understood English a little better and he says, 'What's the matter?' and I said, 'Fire in the second vein, come out quick; right away!' and I showed them out from the wall to the road ahead. The bottom is about 300 feet from where I was working. At the third vein bottom, I saw a hose in a man's hand and he was fighting the fire, putting out the burning hay. You could not see the blaze, just the steam and smoke. The man was Ole Freiburg; he is down there yet. It was a short hose. There were twelve or fifteen men behind me, and I was at the escape shaft with my foot on the ladder to go up the steps. I turned to my buddie and he was right behind me. I told him I was going to take the coal out of my shoes and I turned back and said, 'Go on up, and I will come up after you.' So I turned round to Ole Freiburg, who was standing there, and asked him if they were not running the cage, and he said, 'No, it has been quiet for quite a while.' I got the coal out of my shoes and started up and went up the stairway and just as I got to the last step, there is a ladder there, four or five steps, we have a trap door to go through, and the trap door slammed down and knocked me down a flight of stairs, I got myself picked up. There was two men behind me, so I crawled up and went through the door and the smoke and flames were so thick I did not blame the fellow for letting the door fall on me; but I held it open to let the others go through. I don't know who they were. I started to holler to try and find out which way to go. I thought maybe some boss would have men stationed there to direct the men which way to go, because there were three roads out, the east and west runway and the main air course. I saw flames all over, but I did not know how far they extended. I thought maybe they would have somebody posted to tell us. Well, anyhow, when I hollered out and could not get any answer from this side, I started up in this direction. I could hear men hollering and saw there were four or five cars, or whatever it was I can't say, were afire there right close to the bottom. When I got up there to this bunch of men, I said, 'Why don't you push through?' and he said, 'There are mules here.' I said, 'To hell with the mules; push through.' So we got over here to the left hand side, because it is the road that branches off, and I knew that if I went to the left-hand I would not miss the road. I pushed ahead of them up to where the roads branch off. I saw some lights ahead of me and hollered for a light and they would not stop, and I started to run, and the faster I ran the louder I hollered for a light; I could not say how far I ran, but when I got pretty close to them the last man stopped and gave me a light, and I came back here to this turn in the road, and got right close to the left hand side, because the way the air was I knew I couldn't hold a light in there; I could holler to the men and showed the light the best I could round the corner. As soon as they came up they got a light, and an old man and his son came up. I gave the father a light first and then I gave the son a light and my own light went out. The son started to go on and I said, 'Come back here and give me a light,' because I was getting very weak myself, and I says, 'Johnnie I can't stand here any longer, this smoke is getting the best of me; somebody else has got to stay here.' He says, 'I have two lamps.' So I took his lamp and pulled the wick away up and hung the lamp on the beam and hollered to come up and get a light and we could not hear any more voices, so we left. About half way up here both of us got in the dark again. His lamp went out during the time I was lighting the lamp hanging on the beam, and he says to me, 'You've got a good lamp there,' and just as he said that out it went; so we put our coats together and struck a match and got both lamps lighted, and got out here after running across a trip with a team of mules. We then went straight on and he says, 'Where are we at?' I said, 'I don't know,' and started feeling around for the timbers. The timbers in the west bottom are square, and I could tell by them where we were. I says, 'We are on the bottom'; so we made down to the cage. When I came to the main bottom, Bundy and three or four men were standing there and he said, 'How is it?' and I said, 'The men can't get out of here, because they can't see. You should have lanterns strung along the road,' and he said, 'All right.' A cager had rung the bell to hoist the men. I got on the cage and went up. It was about twenty-five minutes to three when I was notified in my working place. It was a quarter to three before I got to the second vein at the bottom of the escape shaft."

Alma Lettsome testified that he lived at Cherry, was married, and was 56 years of age and had worked at the Cherry mine since the 19th day of August, 1908. On the day of the accident, he was working in the third vein; his attention was first attracted when the cars had stopped coming and he went out to the bottom of the big shaft, saw a driver standing there and said: "'How is it they are not hoisting in the big shaft?' and he said, 'Probably they are waiting for the flats.' I paid no more attention and walked back in company with two other men to my working place. The three of us stayed down there together for I should judge about twenty minutes, when my son came along and told me the mule barn was on fire. He said, 'We have been up there and it is all afire.' I walked up the stairs and saw it and said we must get out as quick as we can. We were then about 750 feet from the escape shaft: we gave the men the warning that were around us and started up to make our way out. There were other men standing at the bottom of the third vein waiting for us to come out and we all started up the stairs one man after the other. When we reached the top of the stairs there was a man standing against the trap door and he wouldn't go through it; he had lifted it up and seen the fire above and he said, 'We can't go through there, it is all afire.' I said, 'We can't go back, we have got to go through there. He said, 'I can't get through,' and I said, 'Well, get out of the road.' I saw it was all on fire, in fact, all flames. We went through the door and south around the east way, reached the cage and went up to the top."

Among the many statements made, comprising nearly 900 pages of evidence taken, there was none more graphic, dramatic and clearer than that of Albert Buckle, a boy standing about 4 feet 6 inches high and who was 15 years of age, who worked as a trapper. Even his statement as to the number of cars of coal hoisted after the fire was discovered is corroborated by the check weighman, and the other incidents related by him are so completely corroborated that we give his story here as among the best, if not the very best, statement made of the affairs that took place on the main bottom.

His story is substantially as follows: "My name is Albert Buckle; my father's, Otto Buckle; he is dead; he died four years ago; my brother is 18 and he is in the mine; my sister is 12; my mother, Mary Buckle, is sick. My uncle is Richard Schwartz and lives in Norfolk, Neb. I will be 16 on the 28th of November. I was a trapper. We ate dinner and then my brother came down and took a car in. He got a trip and came out in the entries and I opened the door and Matt says, 'There is a fire.' I said, 'Where?' and he said, 'At the third vein shaft.' I was in the east runway when I heard of the fire. I took my pail and set it down and Johnson, the mule boss, said, 'Bring your pails,' and we tried to get into the barn for water, and we could not get in there for smoke. We could not get any water in the sump, we were too late already. The fire was burning in the main air course. Matt tried to get water with me and we tried to go through the doors (main air course) but the fire was there; I saw a car of hay burning and the timbers were starting to burn. I saw Rosenjack come running out to the main bottom. He got a cage and went up. I saw Bundy, the diggers, cagers and spraggers at the bottom. I was sitting there playing, and he said, 'Fire, come out,' and I said, 'Oh, there is plenty of time,' and he said, 'There isn't time,' and the boss told us to get our water pails and get water. After the fire started there was five or six cars of coal that went up. At half past one the diggers came along and I got my pail and went to get on the cage and the cager put me off and said, 'Get the pails and put the fire out.'

I think it was George Eddy who told the drivers, 'We are going to put the fire out and go to work again.' I remained on the bottom for half an hour. We stood around there and they still hoisted coal. I think it was half an hour from the number of cars that went up. Johnson was running around and closing the doors and the smoke was getting strong. Dominic Christo told me that Andrew Timko would tell my brother and they went to tell the diggers to come out. My driver said, 'Bill, give us a cage; everyone is going to die here,' and he said, 'No, we are going to put the fire out and start to work again.' I says, 'You ought to notify them diggers inside that is working in there,' and he says to me to run and tell them. It was after that that I told

Dominic. They were hoisting coal then with the main cage. Some parties went up for a hose. They got the hose, then put something over their faces and tried to go into the barn to fasten it, but could not get in. My driver said, 'Bill, if you don't give us a cage, we are all going to choke,' but after that he gave us a cage for the smoke was too strong. As we were going up I hollered to McFadden to notify them diggers and he ran back."

William Maxwell testified that his home was in Spring Valley, but that he had been working for some time at Cherry, and that on the 13th of November he was working in the third vein in the southwest. He said: "I saw smoke coming in at the face and it got so mighty hot and thick that I got a little alarmed and came out to see the cause of it. I thought it was a sheet that had taken afire. I would judge that was about half past two; it was all of that anyhow. I came out to the bottom; the smoke got thicker all the way. I couldn't see anything because of it until I came to the bottom and I saw there was one man with a hose putting out some burning hay that had fallen into the shaft. The car and all was in the sump. As I started to go up the ladder to go home someone said that the middle vein is on fire, so I went back after my son; he had been with me at the face of the entry. I went back to him and when we returned to the bottom there was nobody there. We went up the ladder and up the stairway and when we reached the top at the second vein it took two of us to lift that door that you have to raise when you come up. After traveling that distance in that unlivable smoke you are not in a very good shape to life a heavy door made of sheet iron which was about 2 feet square.

"After my son and I lifted it we came out, but two Italian men who followed us did not get out. They fell on the road between the ladders and the cage in the second vein. My boy dropped about 70 feet away from the cage; there were two parties that went down later and rescued him. I went on staggering to the cage and Mr. Rosenjack helped me on the cage and asked me if I could take hold of the bar myself and I said I could, so I came up alone on the cage. About six or eight minutes afterwards my son was brought up. I should judge that we were about the last that came out of the bottom vein."

Robert Shaw testified that he lived at Spring Valley, has been a coal miner for about ten years and that he went into the mine on the second Wednesday after the fire at about 2:00 o'clock. He said: 'I went down in the cage to the second level and from there to the third vein. I had to slide down a rope 10 or 12 feet to reach the cage that took us to the third vein. There were four of us, and when we got off the cage, we stepped into water and walked for about 150 feet, I suppose. We went to the west side first, returned and hollered up and told them we were going to the east side; we walked off and went to the first entry north, northeast is what they call it, I guess. We found men there; and also as we came in we found the canvas, all stuck up round the bottom and the rails stacked up to keep the air from going forward or so the air could get through it. We walked into three or four entries to the second switch and there found many dead men; beside them were three pieces of slate; one piece had marked on it the number of men that came up to this point in bunches. It was beside a fellow that was sitting up against the timber. There was one bunch of thirty-five; another piece of slate had marked on it twenty-three, etc.; that was the last bunch that came, I think; the figures totaled on these pieces of slate 168. The men were all lying right along the road to the left, to the right and to the straight. They were about 500 feet from the hoisting shaft. We counted forty-nine men and merely looked over the rest. They had constructed a fan like the paddle of a little steamer for the purpose of furnishing air for breathing; it was made out of boxes they had down there for their tools. It was about 3 feet in diameter. We found one bucket on the west side of the shaft with a piece of bread and a piece of cheese in it. The bottom was fixed with canvas to keep the smoke or whatever it was that came there away from them."

George Eddy testified that he lived at Cherry, was 48 years of age and mine examiner for the St. Paul Coal Company. He said: "At about 1:30 in the afternoon of November 13th last I was on top of the shaft sitting down there on the third vein engine house steps, the first knowledge I had that there was a fire was when I saw smoke coming out of the shaft I went right down on the first cage; the first thing I did was to ask one of the drivers to loan me his lamp and he said he had only one lamp; I said, 'Well, lend me your lamp until I go to the cupboard,' and we have some there so I got a torch and went into the air shaft. Mr. Norberg was ahead of me; there was a car of hay on fire and it had caught the timbers and the lagging and Mr. Norberg says, 'George, the whole thing is afire.' I says, 'Yes, it is working on the roof.' So Mr. Norberg turned around and came back and I followed him out and before we got out somebody opened the two check doors. Then when we got through into the big bottom I went up on the west side to see if we could do anything about getting the fire out.

"I found some empty cars and a team of mules near the air shaft and hay on the other side; there was nobody in there but me and I came up to the big bottom to get someone to help me. There was nothing on the west side of the bottom, the flames were coming through there and I just took my torch and went inside to get all the men out I could. I went up on the second west to notify the men when I met the drivers on the parting and they asked me what was the matter; I told them to get out just as soon as possible, just as fast as they could and leave their mules and everything there and run. They all started out for the bottom and then I went into the sixth south entry. There are twenty-two rooms turned in that entry but they are all finished up to eighteen. That is the first room working; I notified them and got them all out, came out again to the main entry and met John Bundy and told him the shaft is on fire, and he asked me where it was and I told him it was between the air shaft and the main shaft. I told him I had got all the men out there and he said I should go in and get these others to the south, so I went in and notified them and then I met Mr. Waite and told him what was wrong and he said, 'You finish this entry and I will go in the nine and ten north,' so we did that and met on the switch and we waited there until all the men came out.

"When we got the men all out ahead of us and got down to near the mouth of the entry, we could not get out, we were blocked in on account of the black damp and smoke; there were twenty-one men with us; we went back up the entry and tried to go out another road and we found the black damp was stronger there than it was where we were, so we went back into the main entry again. Then we tried two or three times to get out on Saturday and Sunday, but we couldn't get out; every time we would try it we were further away from the bottom, so we saw that we were not going to get to the cage because the black damp was pressing us in from both sections and we knew it was going to fill up the face and that we would smother in there, so we went in and built a wall across the second west entry and we built across the first west entry of dirt and we were inside there seven days, or until the rescuing party came for us."

RESCUE OF TWENTY-ONE MEN.

The story of George Eddy is particularly interesting for his experience is connected with the gathering together of twenty-one men who walled themselves away from the fire and smoke by closing up an entry and living therein for eight days, after which they were rescued by parties who had ventured to go into the mine for the purpose of getting out dead bodies, but not expecting to find anyone alive.

These men were notified by Eddy on the afternoon of the fire, but after they had collected, they could not reach the shaft, and after one man had died, they were compelled to retreat to a distance where they could find an entry containing a living atmosphere. George Eddy and Walter Waite persisted in the attempt to find their way out. They all then spent the first night huddled together at a safe distance from the main shaft, hoping the fire would die out and that they would be able to make their escape, but the next morning they encountered black damp and had to retreat further back; George Eddy and Walter Waite made a desperate effort but were overcome in the attempt. They decided that their only safety lay in walling themselves in until a change in the condition of the mine took place.

Here they remained, with nothing to eat and very little water, for seven days. They had a light from Saturday, the day they were entrapped, until Tuesday, when their oil gave out. They were able, with the aid of their picks, to dig a few holes, into which there ran some water, but it was of so poor a quality that it was not of much value. Here they lived in hope and in prayer that their lives might be spared and that they might be able to return to their families.

The suffering which they endured from hunger, suffocation and the thought of their most certain death is almost indescribable. Here they dwelt in darkness and despair, writing notes to their loved ones whom they had given up all hope of ever seeing again. At the end of a week's time they were getting in such a weakened condition that they knew they could not hold out much longer, so they agreed that the four who were the strongest were to make a last attempt to get out, even though they should die in their efforts. This was on Saturday evening, November 20th.

It was in this attempt, as they struggled toward the escapement shaft, finding better air than existed before, that they encountered the rescue party, consisting of David Powell, mine superintendent of the Braceville mine; Father Hanney of St. Mary's church, of Mendota, Ill.; Captain Kenney, of the Chicago Fire Department, and three other firemen. It was the greatest surprise to the rescuing party to hear voices of human beings in the mine, when they expected to find nothing but dead men. After coming in contact with these four men and after a most heartfelt and thankful greeting, they lost no time in finding out how many there were and preparing for their safe deliverance and rescue. They soon ran across four others who had followed the first four. Those who were left were not able to walk.

It would be hard for us to comprehend the joy and expectations that existed in Cherry when the news was spread that men had been found alive. Each one hoped that all would be found and that their own dear loved one was among the rescued. Those who were rescued were: George Eddy, Walter Waite, Thomas White, John Lorimer, Frank Waite, Thomas Brown, John Barnoski, John Semich, George Semich, George Stimez, Frank Sanerania, O. Antenore, Daniel Holafcak, William Cleland, Fred Lauzi, Slivatore Piggatti, Joseph Piggatti, Bonfiglio Ruggeri, Fred Prohaska and Frank Prohaska.

Daniel Holafcak, the oldest man in the party, was not able to stand the ordeal through which he had passed, and died the day after his rescue, Sunday, November 21st.

The meeting of these men with their families and friends was a bright spot in the history of the dark days around the little village of Cherry, for they had been mourned as dead.

It encouraged the rescuing parties to search for others that might have so protected themselves, but no more were to be found. The others had died in their attempts to reach the escape shaft.

OPENING OF THE MINE.

Mr. McDonald arrived at Cherry on Sunday morning, November 14th, and says the main shaft was sealed up and the escape shaft partly sealed. The work of directing the relief and rescue was in charge of the State Mine Inspectors, and also mine experts from Urbana, and later on, men from the United States Rescue Station at Pittsburgh. Richard Newsam was directing this work. An effort was being made to enter the escape shaft, which was only partially successful.

On Sunday, the 14th, the main shaft was opened and two men with helmets were lowered to the second vein. They reported that with a sufficient supply of water and suitable hose they could have extinguished the flames, but the only available hose was so large and cumbersome, and the supply of water, which was furnished by tanks on flat cars hauled from Ladd or Mendota, so inadequate, as to seriously handicap the work of fighting the fire, and the men with the helmets were soon driven out and the mine sealed again.

Two days later, the main shaft was opened again, and with the valuable assistance of the Chicago and Ladd firemen, who displayed great courage, the mine was again entered and the fire placed under control, temporarily, and the work of taking out the bodies began.

On Saturday, one week after the fire, some practical miners took charge of the rescue work, and by noon some fifty bodies were taken out, and at 1:00 o'clock some men were discovered alive and twenty-one taken out.

On the east side of the shaft at the second vein bottom, where the fire had burned out the timbers, an immense fall had occurred, which had fallen some 40 or 50 feet high, and made it unsafe to get off the cage on that side, as the rock was continuously dropping, making it impossible to explore that side of the mine.

On the west side the entries were standing about as well as before, but the black damp was so bad it was impossible to enter many of them without helmets.

The partings were blocked with loaded cars and dead mules, which were in such a state of decomposition as to make it almost impossible to get beyond them.

After passing the first main parting in the south entry, we encountered a group of some ten bodies, one in the center in the attitude of prayer. From there on, the sights were horrifying. Men's bodies, singly and in groups, were encountered and the stench was such as to tax to the limit the strength of the rescuers.

A great deal was accomplished in rescue work during the day, but that night a number of the inspectors returned and on Sunday a new mine manager was employed and the entire day was consumed in exploring certain sections of the mine and discussing theories among the so-called experts, and the work of rescuing the bodies was, by their orders, practically discontinued. Fortunately, the mine manager who was engaged in the morning resigned in the afternoon, and, after vigorous protests by the miners and the officials of the United Mine Workers, the work of rescue was resumed.

On the following day a meeting of the executive board of the Mine Workers of Illinois was held at Cherry, who selected a committee to visit the management and the inspectors to demand that steps be at once taken to explore the third vein, and to protest against the dilatory tactics employed and volunteer their assistance in making the exploration. After some further delay, a committee of miners was lowered into the third vein and reported finding all the men gathered in one group where they had met their death together.

During the entire proceedings, much valuable time was consumed by those in charge discussing theories, and there is no secret of the fact that harmony was a stranger between the State and Federal forces.

There were too many bosses and apparently no one in authority. One of the experts made the statement a few days after the accident that the mine might as well be sealed up and abandoned entirely, notwithstanding the fact that twenty-one men were taken out alive some days later.

The miners' executive board finally appealed to Governor Deneen by wire to put some one in charge of the work and registered a vigorous protest against the delay; but by this time the fire had again begun to burn more fiercely and the mine was again sealed and remained sealed until Feb. 1, 1910.

On this date, the concrete top that sealed the mine was broken, and, after thorough tests by the officials and experts, it was found that the fire had been smothered out. A party of men, headed by Richard Newsam and Thomas Moses, made the first descent into the mine and found the fire entirely extinguished.

Work was begun at once at removing the debris, falling timbers and numerous cave-ins through the direction of the above men and State Inspectors John Dunlop, Thomas Hudson, Hector McAllister and mine officials; volunteers were called for and soon a large force of men were at work, but it was not until February 18th they could get far enough away from the main shaft to discern the bodies of the men they failed to reach before sealing the shaft. It was then that eleven bodies were found. On February 19th, four more were found and on the 21st, two more. On March 2d, two more were found, and on the 4th day of March, sixty-one bodies were found huddled together as if they had banded themselves together for mutual protection.

On April 10th, thirty-one were found in a like manner, as it appears that they had met their death from the foul air and the poisonous gases. They had constructed fans out of 1 x 12 boards, mounted them upon mine props and they had turned them by the aid of mine machine handles. On one of the blades was written: "All alive—2 p. m., 14." Other bodies were subsequently found until, in all, 251 bodies had been discovered Aug. 1, 1910. There were probably eight remaining in the mine in some cave that has as yet been unaccessible.

THE PUBLIC'S RESPONSE TO THE NEEDS OF THE VICTIMS.

RELIEF.

After dwelling with the horror and suffering of victims that were caught in the mine, we must turn to the heart-stricken widows and children, fathers and mothers, brothers and sisters, who anxiously waited for those who never returned.

It was a pitiful sight to see those bereft ones linger about the hoisting shaft for days, scarcely taking time to eat or sleep, hoping and praying that those upon whom they were dependent might return.

One of the greatest difficulties which those in charge about the mine and in the village had was the pacifying and providing for these bereaved people.

The widows and children were, in many cases, left without provisions that would last for any length of time, and, being mostly foreigners, had no relatives to fall back upon. They were clearly at the mercy of the public.

As is generally the case in an affair of this kind, the great need is for immediate relief. It takes some time to administer relief efficiently and systematically after it has been tendered. There were 160 widows and 390 children to be cared for. In some instances, a son was supporting a widowed mother and brothers and sisters. There were, in all, 607 persons dependent upon those who were killed in the mine.

Notwithstanding that there was some complaint at first from these unfortunates, there probably was never a case of this kind where relief was administered more promptly or where those in need were better taken care of than these people. Nearly every city and village in the State contributed in some way to their relief; the United Mine Workers, the Chicago Tribune, the Red Cross Society and the various secret societies and organizations were all early on the ground, and the little village of Cherry was soon the recipient of the generosity of thousands.

It is hardly possible to state the exact amount of relief tendered the Cherry sufferers in dollars and cents, for a great deal was sent in merchandise; supplies having been sent in car loads and many organizations worked independently. From the best information that we are able to obtain, the total amount of the contribution was $444,785.92. The amount paid out by the company in settlements (July 11, 1910), approximately $400,000.00, making a total of $844,785.92 contributed to those left without support.

RELIEF COMMISSION.

A national relief commission, known as the Cherry Relief Commission, was organized for the purpose of distributing in a proper manner these contributions. The members of this commission were:

Judge L. Y. Sherman, Springfield, of the State Board of Administration.

J. E. Williams, Vice-Chairman, Streator, Streator Relief Committee.

Duncan McDonald, Secretary, Springfield, United Mine Workers of America.

E. T. Bent, Chicago, Illinois Coal Operators' Association.

Ernest P. Bicknell, Washington, D. C., American Red Cross.

The following sum had been turned over to this commission on July 28, 1910:

American Red Cross	$ 85,837.96
United Mine Workers of Illinois (by Duncan McDonald)	37,466.54
United Mine Workers of America (by Ed. Perry)	26,798.71
Streator Relief Fund (by J. E. Williams)	4,869.21
Mrs. James Spears (by Dr. G. Taylor)	1,000.00
Dr. R. A. Smith, Spring Valley, proceeds of a concert	243.40
Total	$156,215.72

This commission had, under the direction of the State Board of Administration, the distribution of the $100,000 which the State Legislature appropriated, making the total sum of $256,215.72 to be distributed on the pension plan to the widows and orphans.

There were contained in the donations of the Red Cross many large contributions that should receive special mention. Among them is that of the Chicago Tribune, which raised $41,041.78 for the relief of the sufferers.

AMOUNT CONTRIBUTED.

The total amounts contributed were as follows:

At the disposal of the Cherry Relief Commission	$256,215.72
Contributions of St. Paul Coal and Mining Company	55,742.40
Death benefits paid by Mine Workers of Illinois	40,000.00
Expended by the Local Relief Committee of Cherry	33,968.91
St. Paul Railroad Company	10,964.29
Matthiessen & Hegeler Zinc Company	10,000.00
Congregational Church	10,000.00
Knights of Pythias	7,500.00
Bishop Edward Dunne	5,000.00
Coal Operators	5,000.00
Citizens of LaSalle	4,292.85
Slavish Newspapers	4,000.00
Citizens of Oglesby	2,101.75
Total contributions	$444,785.92
Settlement made by St. Paul Coal Company approximately	400,000.00
TOTAL	$844,785.92

The contributions of the St. Paul Coal Company consisted of money, provisions, rents, coal, etc.

The death benefit of $150 to the family of each miner killed, which was paid by the United Mine Workers of Illinois for 256 deaths, totals $38,700, and other burial expenses probably make the total $40,000.

There was turned over to Charles L. Connolly, mayor of Cherry, and cashier of the bank, the sum of $33,968.91, all of which was expended in administering relief. This sum was made up of hundreds of donors, representing amounts of from 50 cents to hundreds of dollars.

The Columbus Newsboys' associations of Columbus, O., is worthy of special attention, it having contributed $1,720 to the local relief committee at Cherry. The United Mine Workers were among the first to come forward with $5,000. The Hod Carriers' Union of Chicago contributed $650. The Farmers' and Miners' Bank of Ladd, Ill., gave $200. The rest of the contributions were made up of smaller amounts and represented nearly every vocation and calling, and the generosity of all classes of people.

The amount raised by the employes of the Chicago, Milwaukee & St. Paul Railroad Company was also turned over to Mayor Connolly, as treasurer. Although a busy man, and especially so after the fire, Mr. Connolly deserves great credit for the valuable service he rendered during this calamity upon the little city and for the most excellent manner in which he kept the records of the contributions and in his careful distribution of them.

THE PLAN OF ADMINISTERING RELIEF.

The plan adopted by the Relief Commission was as follows:

To widows without children, or with children over 14 years old, or where the families leave this country, a cash settlement was made, usually amounting to about $300. For all the rest, the pension plan was adopted.

A widow with one child under 14 years old was given a pension of $25 per month until the child became 14 years of age or until they should otherwise become self-supporting.

A widow with two children under 14 would get $30 per month, and for each additional child, $5 more per month, until the maximum of $40 per month was reached.

The average of the children was 5⅔ years and it was estimated that the fund on hand would support the dependents for eight or nine years, or until the children were able to work.

Thus it will be seen that at all times—from the first,—the relief work was pushed with vigor, and that the American people displayed in no uncertain manner their sympathetic generosity and big-heartedness. Food, clothing, medicine and supplies were sent from all parts of the country and were rapidly dispensed by the members of the charitable institutions on the ground, the value of which cannot be estimated. It was announced that on the 23d of November, ten days after the accident, $31,650.93 had been sent to the relief commission at Cherry.

The St. Paul Coal Company accommodated in the sleeping-cars of the Chicago, Milwaukee & St. Paul Railroad from 150 to 200 men and nurses and the dining-cars were serving meals three times a day to the officials of the mine, mine experts, mine examiners, physicians, nurses, newspaper men and the workers. The company did all in its power to alleviate the suffering and distress. The homes in which the widows and children lived were turned over to their occupants and no rent was charged during the months of that winter. The coal which was used to heat those domiciles was also furnished. Even medical aid was tendered the sufferers for months following the disaster.

It seems that everything that could be done for the physical relief of those bereaved people was cheerfully performed, in the hope that through this means they might partially, at least, help them to bear their sorrow.

THE SETTLEMENT WITH THE ST. PAUL COAL COMPANY.

THE EFFORTS OF JOHN E. WILLIAMS.

Before the bodies of all of the dead were recovered and while it was still uncertain whether all of them would ever be reclaimed or not, the people, whose sympathies had responded so promptly in the hour of Cherry's affliction, began to inquire "What is to become of the widows and orphans?" The sending of special trains, loaded with food, clothing and other provisions, as an expression of public sentiment, served very well indeed to relieve the pressure of immediate wants, but what of the future? The widows and children of the ill-fated men had to be taken care of in some way,—but how? That was the problem, and while hundreds were wondering, the mind of John E. Williams was working, and out of it came a solution accepted ultimately by every interest concerned, in consequence of which, ample financial provision was made for all the victims of the Cherry disaster, continuing until most of the children were old enough to support themselves.

In an article contributed to The Forensic Quarterly for June, 1910, by S. B. Elliott, a fairly full and authentic account is given. It contains so much of the history of the settlement that the liberty is taken of incorporating it as a part of this report. It quotes sections of the English Workmen's Compensation Act upon which the settlement with the St. Paul Coal Company was based. It also contains a reference to the preliminary discussion conducted by Mr. Williams, forming, as it did, the ground work of all subsequent negotiations. The proportions of the self-imposed task are only partly shown in the complexity of conflicting interests that had to be reconciled, the character of the prejudices that had to be removed, and the tempting visions of large contingent fees that had to be destroyed.

The situation was at all times critical, requiring the constant presence not only of a persuasive and persevering but of a controlling master-mind, and the artist possessing all these needed qualifications was on the job, the only uncertain element being whether the patience and self-interest of ordinary men could withstand the strain.

When all the interests were apparently harmonized and success in sight, a break in some unexpected quarter would occur, and with it would vanish the prospect of an adjustment, to be again revived by another effort. Behind all this time-consuming, patience-exhausting skirmishing, the crux of the main question remained untouched, for, as Mr. Williams states, up to this time, neither the survivors had been pacified nor the company persuaded. To this greater question Mr. Williams focused all the power and influence of a well-trained and evenly-balanced mind. With a vision rare among men, through the tears and grief of a stricken people, he saw the lines of a new duty, the open doorway of a great opportunity, and succeeded in transmitting the materials of a tragedy into an instrumentality of immense service to mankind. Inspired by no other purpose except the weal of his fellow mortals, this man, for months, disregarded the demands of home and business, and, in the ardor of a splendid consecration, gave the wealth of his mental and spiritual endowments to a cause, that absorbed all the energies of his active soul.

It was the writer' privilege to know nearly all of the men whose cooperation was required to bring about the consummation of the plan. Mr. Albert J. Earling, the large-hearted, broad-brained president of the Chicago-Milwaukee & St. Paul Railway, whose comprehensive judgment and wide sympathies did so much to destroy the force of the criticism directed against all corporations; John H. Walker and Duncan McDonald, who, as officials of the Mine Workers' organization, were heartily in sympathy with the principle of compensation which the plan embodied; the consuls and representatives of foreign governments and the attorneys for the company and the sufferers. While each is entitled to great consideration, the credit for the settlement belongs almost exclusively to Mr. Williams, and all familiar with the facts will so declare. This claim can be made for him without disparagement to anyone. His ministrations brought the parties together. He paved the way and was the first to clearly recognize the possibilities of the situation.

By training and talent he was specially fitted for just such work. Besides, he was the solitary man whose motives could not be questioned. Neither the Mine Workers' Union, representing the victims, nor the St. Paul Coal Company, with an investment of nearly half a million dollars, had anything but good will that he would accept. He was not a hired agent; he came as one imbued with a high sense of justice, seeing in the wreck of an awful calamity a chance to emphasize (as Mr. Early expresses it) a "principle of equity," and with a pleasing, pleading personality, eventually won others to his view. There is a saving sense of satisfaction in the assurance that we still have with us men of such strong, helpful, altruistic character.

It speaks well for the present and future of the race, besides helping to remove the grounds for the accusation that all men's motives are mercenary and that the commercial demands of the age are such as to exclude all other higher considerations.

There is a wide field for the exercise of such powers and the men who are able and willing to fully meet the obligations of this relation in life are now, and ever have been, the real kings of the world. The ceremony of fixing a date for their coronation may be dispensed with, for they stand already crowned and glorified. And to the immortals who are thus qualified to take their respective places in the "Choir Invisible," what a privilege and a pleasure it is to be to other souls

"The cup of strength in some great agony,"
and then to live forevermore
"In deeds of daring rectitude, in scorn
For miserable aims that end in self,
In thoughts sublime that pierce the night like stars
And in their mild persistence urge man's search
To vaster issues."

AN EPOCH-MAKING SETTLEMENT BETWEEN LABOR AND CAPITAL.*

(From The Forensic Quarterly for June, 1910.)

"One of those solemn moments had just passed when men see before them the course of the world turned one way, when it might have been turned another."

In the face of the titanic movements of the universe that of late we have for a moment paused from toil or pleasure to realize, our world seems very diminutive. We have, perhaps, wondered if our planet counts for much and we venture to think that for a few weeks, at least, millions of mortals have felt anxiously insignificant. And yet. as we speak of the world's history, as we say—"One of those solemn moments had just passed when men see before them the course of the world turned one way, when it might have been turned another," a sense of greatness comes over us, and that, not all spiritual, and be we, as planet or as mass of life, large or small, such moment is, to us, solemn.

The whole country heard of the "Cherry Disaster." The awful entombing of hundreds of men; the horror of the slowly suffocating, sealed in a burning pit. And yet, it was only one of the many coal companies that was wrecked; only a few hundred of the many thousand coal miners who were buried; a local calamity, just as other calamities in this big country; an unnecessary horror caused by the stupidity of one mule-driver. The Federal and State governments furnished various kinds of experts; troops were sent to save the crazed people from themselves; the Red Cross did its work; a relief committee was formed; money was subscribed, and the "shyster" lawyers gathered like birds of prey.

There was a pause while the dead were buried, while the hungry were fed;—then the shock passed, and the world, drawing a long breath, went on its way,—leaving the wrecked corporation, the destitute widows and orphans, to solve their own problem of irreparable loss, of bitterness, of antagonisms, of legal war between capital and labor. It was in this pause that a man, just one man, a looker-on, a one-time miner, who, because of his experience realized the present as well as the possible future misery to both sides, began to work. So quiet, so sane, so gentle, so patient was he that the crushed people, the wrecked corporation, scarcely knew that he worked; not even the "shyster" lawyers suspected in him an enemy. He, however, fully realized them and guided himself accordingly. Back and forth between corporation and claimants he went: he listened, he questioned, he advised, until at last, after long and patient labor against seemingly overwhelming odds, he turned the destroying fire of the unfortunate muledriver into a "refiner's fire," where the dross of all evil contentions, all bitterness, was burned away and only the pure gold of loving-kindness, or Christ-like compassion, was left.

How he did this is the point of this summary.

He found that the total number of killed was about 270.

Total number of widows, 160.

Total number of children, 470; of these, 407 were under 14 years of age; by law, too young to work.

After careful calculation, he decided that besides what had been given by the Red Cross, the United Mine Workers, the State of Illinois, and the general public, a half million of dollars would be needed to care for these dependents in any permanent way. Also, he decided

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* This article is a compilation patiently made by Miss Sarah Barnwell Elliott from letters, reports and official statements, with the least possible editing, as it was felt in this case "scissors and paste" would be of more public service than "Pegasus."

that the St. Paul Coal Company, owner of the Cherry mines, was the most promising source of help.

He then made a study of the resources of this corporation and found that the mines of the St. Paul Coal Company, "capitalized at $350,000, fully paid in, were opened and operated especially to supply the Chicago, Milwaukee & St. Paul Railroad with coal;" . . . . "that without the trade of the Chicago, Milwaukee & St. Paul Railroad they would be curtailed of their market, and with the hostility of that road be practically worthless" . . . . "That if the claimants went to law . . . . fought through the Supreme Court; . . . . that if a judgment against the company were affirmed . . . if the property were sold to satisfy this judgment . . . . the company could go through bankruptcy or go into the hands of a friendly receiver" . . . . "that if, under the circumstances, the property could be sold for its full value, and there were no other creditors, it would yield about $1,000 apiece to the claimants."

He then asked, "Could it be sold for $350,000?" "The stock being owned by the Chicago, Milwaukee & St. Paul Railroad, any friend of that road could and would, at a forced sale, bid in the property," no one daring to bid against him because, as it was expressed, "No one could afford to have the mines as a gift, if in so doing, he incurred the hostility of that road—for, in that case, he could not expect the trade of that road, and could expect no other!"

But supposing the sake at full value; first, the legal expenses would have to be paid; then the sums due for rescue work; then for repairing the mines. To sum up the losses:

Forced sale in an unfavored market.

Enormous legal expenses.

The cost of the disaster. What then would be left to each claimant?

After this summing up; after bringing home to all, that though the Chicago, Milwaukee & St. Paul Railroad, a $400,000,000 corporation, owned, practically, the St. Paul Coal Company, yet beyond the resources of the St. Paul Coal Company, there was no legal liability for the Cherry disaster. Then the problem had to be met: "What other recourse have we?" And the president "met the question squarely" by answering: "We acknowledge a moral obligation." "This statement . . . was the keynote of all the subsequent proceedings.

Up to this time, the self-appointed mediator had proceeded on his own responsibility; now, he reported all his findings to the relief committee and asked their opinion. At once, and unanimously, the committee put itself on record as "favoring a mediation as the best possible solution of the Cherry situation . . . and the greatest precedent for the future that it would be the privilege of any body of men to establish."

At once they saw "before them the course of the world turned one way, when it might have been turned another."

The next step was the basis of settlement. In company with the three chief officials of the United Mine Workers, the self-appointed mediator called upon the president of the Chicago, Milwaukee & St. Paul Railroad—President Earling—and submitted to him "two plans of settlement, one by a commission appointed by the President of the United States; the other, a proposal to settle on the basis of the English Workmen's Compensation Act." The latter plan was agreed to.

The next step was a mass-meeting of the widows at Cherry, where a committee of conference was oppointed, of which the self-appointed mediator was made a member. It is impossible to tell of all the conflicting interests and purposes; of the tremendous difficulty of uniting them on any plan that would avoid litigation. The survivors had to be pacified, the company had to be persuaded, for the sum asked in settlement was not a small amount.

To give figures, the sum settled on by the St. Paul Coal Company as being "the most" that could be paid for settlement, was $250,000 and a "moral obligation" felt by the controlling railway company, while the sum settled on by the self-appointed mediator as necessary from the corporation was $500,000. How could he get this? How "transmute a moral obligation into its financial equivalent?" As the self-appointed mediator writes, "It was by no means a simple matter. For if we took any arbitrary sum as the measure of the indemnity; just as good arguments could be urged for a larger sum. If we suggested $1,500, the largest sum up to that time paid in a large disaster, some one with equal force could urge $2,500 or $3,500 or $5,000.

And then the obligation was not at all on one side. The powerful head of a $400,000,000 corporation is by no means a dictator. He is allowed his power only because his stockholders believe he will use it to their mutual advantage. If he acknowledges a moral obligation, it must be such a one as they can be brought to sanction and approve. He must satisfy his own sense of right, he must meet the reasonable moral expectation of right-thinking men, and he must do it in such a way as to secure the approval and support of those who paid the bills, and received neither publicity or reward for their contribution.

"I shall never forget the memorable interview at which the many angles of this complicated question were made clear to me. It was at an interview with President Earling. It was my part to urge with all the fervor and eloquence at my command the moral demands of the situation; it was his to listen and decide. In two hours of sincere, earnest, and fervent discussion, I presented my cause from every conceivable point of view. Mr. Earling listened, weighed, and considered patiently, and met every point with a sincerity, earnestness and fairness equal to my own. Where he agreed, he admitted it frankly and gladly; where he differed, he did it courteously, kindly, almost regretfully. I felt I was in the presence of a man who felt the grandeur of a great moral issue, and who was weighed down by the burden of a heavy, and almost tragic responsibility. But he could not at that time reconcile himself to my solution of the moral problem. He had fixed in his mind on a sum that was $100,000 less than my plan called for, and it seemed to him better that the claimants should "take the property" rather than grant the sum that my proposal seemed to demand.

"I left his presence chastened and discouraged, but not the least doubting the sincerity and earnestness of the man whose responsibilities were so much greater than mine. The interview was not without its fruits, however, for a few weeks afterwards I was summoned to a conference of representatives of the various interests, at which Mr. Earling adopted in substance the principle of the proposal I had previously made. That principle is well known to readers now, being the principle of the English law which gives for each accidental death the equivalent of three years' earnings. The proposal was accepted by consular and other interests, and settlements with the Cherry claimants are now in process of being effected on this basis. Mr. Earling did me the honor to say that my words had been the means of convincing him of the wisdom of adopting the English precedent in the settlement of the Cherry problem, and I am proud of the honor; but it is his own broad mind, big heart, and strong will that has put the plan into execution, and given it a reality in the world of fact that will make it go down into history as the most potent and significant result of the greatest mining tragedy in history.

"I am tempted to add just a word of an impression left on my mind as the result of my unusual contact with one of our great over-lords of commerce. It is this: That corporations are endurable or possible only because of the great humans who are behind them. In themselves they are soulless abstractions, existing only for the economic purposes. But they must have men to run them, big men, strong men, and you can't find a man big enough for the job unless he has a great 'human heart' and plenty of rich, red, blood in his veins. Down below you may find automata, man machines; but at the top you must have a 'live wire,' a real man, and not all the corporation machinery in the world can grind the human sympathy, the human interest, out of him. Without him, the barricades, the red flag, the reign of terror; with him, perhaps the evolution of the corporation into the Hope of the Ages. Let us dare to have faith. At least so much has my brief contact with President Earling enabled me to do."

So much for the self-appointed mediator's view of Mr. Earling, president of the Chicago, Milwaukee and St. Paul Railroad; let us see now what Mr. Earling thinks of him, of this sane, wise, patient J. E. Williams. Mr. Earling says:

"Dear Mr. Williams:—Your letter of April 16th, with the enclosure accompanying it, came to my office during my absence in the east.

"It is better, in view of all the interests, that the facts concerning the Cherry settlement be given to the public. There is no one so well qualified to give them as yourself, and, while I have a natural disinclination to publicity, I cannot be otherwise than glad that you have published this statement, and with it there is a deep measure of personal appreciation of the more than kindly treatment you have accorded me.

"No one could have gone to Cherry in its hour of disaster without being profoundly impressed with the futility of mere legal remedies. The machinery of the law never could have fed the hungry or clothed the naked. No corporation worthy of receiving from the State the right to transact its business could have closed its treasury in the presence of hunger and destitution simply because no legal responsibility rested upon it to furnish food and clothing. At such an hour as that the question of legal rights and duties become insignificant as compared with the impelling call of humanity, and corporations are as human as the men who compose them.

"I hope no question more appalling or more difficult to solve will ever come to any corporation than that involved in doing justice to the survivors at Cherry. There were two survivors of that disaster, the bereaved and stricken people, and the ravaged corporation. Again the impotence of the law was emphasized. All the law could do was to take the wrecked and shattered property, and divide it as best it might, through long and tedious delays and expensive and wasting processes. This meant complete loss of the property to its owners, and, in the end, but little, if any, alleviation of the suffering of the survivors, or mitigation of their poverty. It was evident from the outset that the best relief which the law could afford meant only added disaster for the survivors at Cherry, and absolute annihilation for the company. It became, therefore, of the highest importance to all that some basis of settlement should be arrived at which would give quicker relief than could be obtained through legal means, and which would be within the financial limits of the property involved.

"I think it is probable that the company and a considerable number of the survivors could have come to view the principles that are involved with substantial unanimity, but I am convinced that whatever might have been the disposition to arrive at a settlement, just on the one side, and equitable on the other, nothing could have crystallized the details into a final result as did your patient, earnest and disinterested mediation.

"It was difficult at the outset to understand such unselfish devotion to the cause of humanity. There are many motives which lead men to champion one side or the other in any controversy. There are many ardent advocates of one side or the other, but no other instance has come under my observation of a man with the capacity to help coming voluntarily to the aid of the contending parties, with an equal eye to fair dealing for both, and justice for all. I think I am justified in saying that without your skillful and intelligent mediation, the settlement at Cherry would have been as far off now as at any stage of its negotiation.

"I am glad that the Cherry settlement bids fair to be an epoch-making event in the relations between employers and employed in this country. All those who had a part in bringing it about must, of necessity, have their share of credit for its result, but, above and beyond them all, no single factor of as much importance as your own undaunted persistence in the face of circumstances that so often seemed hopeless. If, out of the wreckage of property and tombs of men at Cherry, there shall come forth a permanent bettering of the relations of employers and employed in the hours of their common disaster, it may be counted as some small salvage from so awful a calamity. And, so far as it contributes to the welfare of humanity and the advancement of commerce, it shall stand as a monument to your unfaltering effort to establish among men a lasting principle of equity and justice.

Very truly yours,

ALBERT J. EARLING."

The reader who has reached this point will wish to know something of Mr. Williams. He is a one-time coal miner; he was secretary of the first miners' union; was first miners' checkweighman in Streator, Ill.; has been for twenty-five years the manager of the Plumb Opera House in the same town. With the Hon. Lyman Gage and Colonel Rend, of Chicago, he arbitrated the Coal Run strike, and later organized and was president of "The Business Men's Auxiliary League," which helped the miners to carry on the strike of 1897. He is now a business man; is chairman of the "Cherry Relief Committee" of Streator, and the "Self-Appointed Mediator" who has not seen "the course of the world turned one way, when it might have been turned another," but who has turned it. For ". . . hardly has the Cherry settlement taken effect when its principle is adopted . . . The International Harvester Company, employing 25,000 people, has voluntarily come forward and offered its employes an indemnity contract based on the same terms as the Cherry settlement, namely, three times the annual wage in the event of accidental death. It waives all question of 'negligence' or legal liability, and makes the simple fact of death or injury sufficient ground for indemnity . . ." "But the influence of the settlement does not end here. The press dispatches bring the news that the Wisconsin legislature, through its committee, has recommended a bill containing the same essential features—three times the annual wage as indemnity for accidental death. And information has come that the commission appointed by Governor Deneen, one of whom was a Cherry mediator, is seriously considering the same, or a similar measure."

Up to date, May 11, 1910, "the amount paid by the St. Paul Coal Company in settlement of claims is $400,000. About forty claims are still unsettled, mostly single. About $75,000 will be required to rehabilitate the mine."

President Earling was "converted" from $250,000 as being the most that he could bring himself to pay" to the above amounts. Mr. Williams' comment is: "Best of all, he rejoices in his conversion . . . . The doing of the good deed changes the scale of values, and makes the good man feel the result to be worth more than the sacrifice."

Appendix C.

A Peculiar Tragedy of 1880.

By Stanley Smith.

To go beyond official records, it is customary to rely on old newspaper files, and on word-of-mouth, handed down from generation to generation. From these sources, an account of a coal mine tragedy that is probably unparalleled among the mine disasters of the state that have been officially recorded is related.

Rev. W. S. D. Smith, who witnessed the disaster that caused the death of Joseph Niesing, on January 5, 1880, at that time prepared an account of the tragedy for the local weekly publication. It follows:

"The coal mine of Bernhard Blume was, on last Monday, the scene of a casualty, the most remarkable perhaps ever witnessed at an inland town like Pinckneyville in which water was the destroying element.

"The mine is situated on a tract of land adjacent to big Beaucoup creek, and on the line of the Wabash, Chester and Western (now Missouri Pacific) just north of town. The shaft is on the railroad track about one-fourth of a mile west of the creek, which at the time of the strange occurrence was at high water mark, the water nearly touching the railroad bridge and extending all over the bottom on both sides of the creek. Just north of the railroad in the field under which the mining operations had been going on was a valley extending probably one-eighth of a mile and covered by the back water from the creek. The mining had been pushed far beyond this and an air shaft had also been sunk. The mine has a roofing of hard limestone, but by the action of the water or some other cause a crevasse existed just underneath the upper end of the swale. The pressure of the back water made a sudden opening through the crevasse, and down, down, sixty feet or more, the water began to pour into the mine below, the death-dealing torrent increasing in volume and momentum and for a short time almost diverting the current of the swollen creek, carrying away whole sections of the rail fence which stood near the bank of the creek, many of the rails as well as other timber and drift wood being caught in the maelstrom and whirled down the capacious throat of the gaping crevasse.

"Of course it was but the work of a few moments for such a volume of water to fill the main entry, forcing its way in all directions. Toward the shaft it went with tremendous force. Young Blume, a son of the proprietor, who was near the mouth of the shaft feeding or attending to the mules, found himself suddenly engulfed and almost swept away by the tide, and hastily seizing the ropes, signalled the engineer to hoist the cage, which he reached just in time to be lifted from a watery grave, as the column of water with fearful force struck the bottom of the cribbing.

"About this time the phenomenon of a remarkable waterspout occurred. The vast volume of water forcing its way back in the mine in the direction opposite from the shaft, compressed the air in an extraordinary degree, and having no outlet from its ribbed subterranean cavern, the rebound was such that the descending flood was lifted as by the explosion of an immense quantity of powder, and for several minutes was heaved skyward in vast quantities to the height of at least 100 feet. This tremendous upheaval of water, earth and drift, was succeeded by a few minutes of quiet, during which the floods again poured down the funnel. The air of course was again suppressed, and in due time asserted its supremacy over the ponderous pressure of the water, and again the upheaval began spouting and this time higher than before, filling the spectators with amazement at the sight and sound. This process was twice more repeated, when, the principal volume of air having escaped, the water flooded every portion of the mine, rising in the shaft to the level of the creek—the time occupied being probably a half hour.

"But where are the miners during this dreadful conflict of the elements? About two or three hours previous to the break they had all abandoned their work and came out of the mine except poor Joseph Niesing, who thinking there was no danger remained in his room, which was far to the north of the air shaft.

"How he met his death will, of course, never be known. If still at his post, the probability is, that the first warning he received was the sudden compression of the air which, indeed, must have been the immediate cause of his death.

"Mr. Niesing was an honest, poor, industrious, hard working man; he leaves a wife and seven children, several of whom are sick, in straightened circumstances. We have no doubt if the friends of this sadly bereaved family will take the matter in hand, circulate a petition, few, if any, of our citizens will be found, but that will contribute something to these sad, unfortunate ones. The sympathy of our community go out to this bereaved family, and let us show our sympathy to be of the substantial kind if we are shown the petition.

"Mr. Blume is making arrangements to pump the water from the mine as soon as the creek shall have fallen sufficiently, when he proposes to resume mining operations. He has the sympathy of our people in his trouble."

Thus ends the article prepared in 1880. It coincides, in essentials, with other accounts current in Pinckneyville, years ago, as handed down from the observers.

One detail that is related in connection with this disaster that is not given in the newspaper account reproduced herewith, concerns the way the proprietor's son escaped. The story is that the engineer, hearing a signal to hoist, raised the cage to the ground level, found it empty, and lowered it to the bottom of the shaft. Confident the hoisting signal had been given, he is said to have raised the cage again, this time, to the tipple, when he found young Blum hanging to the bottom of the cage.

The forecast that mining operations would be resumed as soon as the high water subsided proved untrue. Big Beaucoup rose and fell for many years before the water was pumped out of the pit.

Until 1918, the old workings of the Blume mine lay unmolested. In them, somewhere, lay the remains of Joseph Niesing.

Then, in later years, the Hale Coal Co. developed a small mine adjacent to the abandoned shaft.

J. C. Niesing, one of the family that was bereaved and impoverished by this tragedy in 1880, had become a prominent and substantial citizen of Pinckneyville by the time the Hale mine was developed. Four of his sisters had reached maturity. Their mother died in 1917. At that time, the man who had been left a semi-orphan at the age of six determined that the remains of his father should be recovered from the abandoned mine and given Christian burial beside the body of his companion.

In late October, 1918, Mr. Niesing enlisted the aid of Edw. Flynn, of DuQuoin, now a state mine inspector, John and Wm. Montgomery, Thos. Hale and George McMath—all experienced mining men, and arranged to have the Hale Coal Company equipment at their command. Pumps and fans were kept in operation until it was considered safe to enter the old workings.

The experienced miners, accompanied by Niesing, began an exploration of the mine. They say they found that the roof had sagged in places so that, instead of ordinary clearance in a mine that has a six-foot vein, they had to crawl. A film of mud encrusted everything, indicating that the water, subsiding, had deposited a silt.

On October 26, 1918, after several days of unsuccessful efforts, they found the body of the victim of the tragedy. It lay face down on the floor of his room, and conditions indicated that he had his working place in order.

The mineral-laden water that had evidently filled the mine for nearly 39 years, had served to some extent, as a preservative. One hand was petrified, and other portions of the body were right well preserved. The clothing and shoes were in good condition. A sack of tobacco and a small clay pipe, with a "heel" of tobacco tamped tight in the bole, were found in the pockets.

Metallic equipment had corroded. Pit cars at the bottom, awaiting the long-delayed resumption of operations, were loaded with coal that had not disintegrated. The pit car wheels had rusted down.

Throughout the mine, the exploring party discovered saw logs and fence rails, brush and other matter entirely foreign to mining operations, that had been swept into the pit when the Beaucoup broke through in 1880.

The body of Joseph Niesing rests beside that of his widow in St. Bruno's Catholic cemetery, near Pinckneyville. His son and four surviving daughters, Mrs. Anna Faber, Mrs. Theresia Schmeilding and Mrs. Ella Naughton, of St. Louis, and Mrs. Henry Mentel, of near Pinckneyville, realize much satisfaction in that after many years, they have fulfilled this obligation of fillial respect.

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